2006 National Interoperability Summit

Proceedings

May 24-25, 2006
Austin, Texas

U.S. Department of Justice
Office of Community Oriented Policing Services
Justice Management Division
National Institute of Justice

U.S. Department of Homeland Security
SAFECOM Program

Prepared by

SEARCH
THE NATIONAL CONSORTIUM FOR JUSTICE INFORMATION AND STATISTICS

This report was prepared by SEARCH, The National Consortium for Justice Information and Statistics, Francis X. Aumand III, Chairman, and Ronald P. Hawley, Executive Director. This report was produced as a product of a project funded by the Office of Community Oriented Policing Services (COPS), Office of Justice Programs, U.S. Department of Justice, under Cooperative Agreement No. 2005-IN-WX-K002, awarded to SEARCH Group, Incorporated, 7311 Greenhaven Drive, Suite 145, Sacramento, California 95831. Contents of this document do not necessarily reflect the views or policies of COPS or the U.S. Department of Justice.

SEARCH
THE NATIONAL CONSORTIUM FOR JUSTICE INFORMATION AND STATISTICS

7311 Greenhaven Drive, Suite 145
Sacramento, California 95831

Phone: (916) 392-2550

Fax: (916) 392-8440

www.search.org

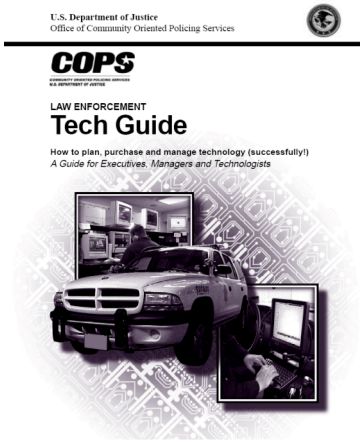
Contents

Acronyms Referenced in these Proceedings

APCO	Association of Public-Safety Communications Officials – International
CAI	Common Air Interface
CASM	Communications Assets Survey Mapping
COPS	Office of Community Oriented Policing Services (DOJ)
COWS	Cellular on Wheels
DHS	U.S. Department of Homeland Security
DOJ	U.S. Department of Justice
FCC	Federal Communications Commission
G&T	Office of Grants and Training (DHS)
IACP	International Association of Chiefs of Police
IAFC	International Association of Fire Chiefs
ICS	Incident Command System
ICTAP	Interoperable Communications Technical Assistance Program (DHS)
IGA	Intergovernmental Agreement
IP	Internet Protocol
ISSI	Inter-RF Subsystem Interface
IWCE	International Wireless Communication Expo
IWN	Integrated Wireless Network program
JMD	Justice Management Division (DOJ)
LLIS	Lessons Learned Information Sharing
NIJ	National Institute of Justice (DOJ)
NIMS	National Incident Management System
NINDR	National Interoperability Network for Disaster Relief
NIST	National Institute of Standards and Technology
NPRM	Notice of Proposed Rulemaking
NPSPAC	National Public Safety Planning Advisory Committee
NPSTC	National Public Safety Telecommunications Council
OIC	Office of Interoperability and Compatibility (DHS)
OLES	Office of Law Enforcement Standards (NIST)
OOC	Olympics Organizing Committee
P25	Project 25
PSBT	Public Safety Broadband Trust
PSAP	Public-Safety Answering Point
PSTN	Public Switched Telephone Network
RDSTF	Regional Domestic Security Task Force
RFI	Request for Information
RFP	Request for Proposals
RFQ	Request for Qualifications
RPCs	Regional Planning Committees
SCIP	Statewide Communications Interoperability Plan
SME	Subject matter expert
SoR	Statement of Requirements
SOW	Statement of Work
TA	Transition Administrator
TIC	Tactical Interoperable Communication
UASI	Urban Area Security Initiative
UCAN	Utah Communications Agency Network
US&R	Urban Search & Rescue
WMD	Weapons of Mass Destruction

Tech Guide Resources Available

Two complementary Tech Guide publications published by the U.S. Department of Justice Office of Community Oriented Policing Services are useful resources for communications interoperability efforts. These publications were prepared by staff from SEARCH, The National Consortium for Justice Information and Statistics.

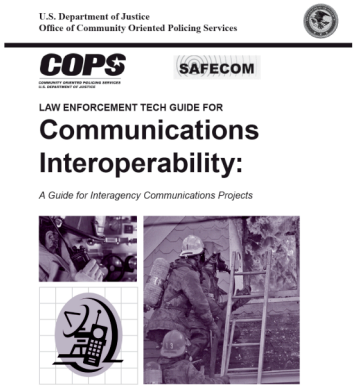


Law Enforcement Tech Guide

Law Enforcement Tech Guide: How to plan, purchase and manage technology (successfully!), A Guide for Executives, Managers and Technologists, was published in 2002. It offers strategies, best practices, recommendations and ideas for successful information planning, implementation, and management. (280 pages)

To request a hardcopy version of the *Law Enforcement Tech Guide*, contact the COPS Office Response Center at 800-421-6770 or email AskCOPSRC@usdoj.gov.

The report is also available on the COPS Web site in Adobe Acrobat format at http://www.cops.usdoj.gov/default.asp?Item=512



Interoperability Tech Guide

Law Enforcement Tech Guide for Communications Interoperability: A Guide for Interagency Communications Projects, will be published by COPS in late summer 2006. It provides practical information that supports efforts to successfully establish interagency, interdisciplinary, and interjurisdictional voice and data communications systems, and is endorsed by the SAFECOM Program. (417 pages)

For news on publication of the *Interoperability Tech Guide*, as well as links to other law enforcement and public safety tech guides published by COPS, see SEARCH's Web site at http://www.search.org/programs/safety/tech-guide.asp.

Agenda

Wednesday, May 24, 2006

8:00–8:30 AM
Welcome, Introductions, and Opening Remarks

Welcome, introductions, and opening remarks by National Interoperability Summit sponsors.

- **Assistant Chief David Carter**, Austin Police Department, Texas
- **Carl R. Peed**, Director, Office of Community Oriented Policing Services, U.S. Department of Justice
- **Dr. Paul R. Corts**, Assistant Attorney General for Administration, U.S. Department of Justice
- **Tony Frater**, Deputy Director, Office of Interoperability and Compatibility, U.S. Department of Homeland Security

8:30–9:00 AM
Key Interoperability Issues in the United States

An opening discussion of key interoperability issues for first responder agencies nationwide.

- **Harlin McEwen**, Chair, Communications & Technology Committee, International Association of Chiefs of Police

9:00–10:00 AM
National Initiatives Update

A panel of agency representatives present the status of Federal programs affecting communications interoperability projects.

- ***Interoperable Communications Technical Assistance Program:***
  Keith Young, Program Manager, Office of Grants and Training, U.S. Department of Homeland Security
- ***SAFECOM Program:***
  Tony Frater, Deputy Director, Office of Interoperability and Compatibility, U.S. Department of Homeland Security
- ***Public Safety Communications Standards:***
  Dereck Orr, Program Manager, Office of Law Enforcement Standards, National Institute of Standards and Technology

10:15 AM–12:00 PM
Project Case Studies

A moderated panel of representatives from three regional interoperability projects present critical success factors and keys to success from project initiation and implementation to ongoing operations.

- **William Romesburg**, Law Enforcement Information Technology Specialist, SEARCH *(moderator)*
- **Steve Proctor**, Executive Director, Utah Communications Agency Network
- **Jesse Cooper**, Communications Manager, Phoenix Police Department, Arizona
- **Tom Sorley**, Manager, Orange County Public Safety Communications, Florida

12:00–1:30 PM
Luncheon Keynote

The keynote speaker addresses regulatory issues affecting communications interoperability projects.

- **Robert Gurss, Esq.**, Director, Legal and Government Affairs, Association of Public-Safety Communications Officials – International, and Telecommunications Attorney, Fletcher, Heald & Hildreth, PLC

1:30–5:00 PM
Focus Groups, Round One

Through roundtable discussion, summit participants develop problem statements, lessons learned, recommendations, and resources needed surrounding five areas of managing an interoperability project: Establishing governance structures and agreements; analyzing and documenting operational needs; project planning and management; procurement, contracting, and vendor management; and implementation, operations, and performance management.

Thursday, May 25, 2006

8:00-10:00 AM
Focus Groups, Round Two

In the second round of roundtable discussions, summit participants attend a new focus group to review and augment the first round of findings.

10:30 AM–12:00 PM
Presentation of Focus Group Findings

Adjournment

Background

The challenge of communications interoperability is well known to emergency responders across the nation. In recent years, numerous projects have been undertaken at local, state, and national levels to improve interagency communications following many unfortunate examples of what happens when responders are unable to coordinate resources during emergencies. In 2005, the U.S. Department of Justice's Office of Community Oriented Policing Services, Justice Management Division, and National Institute of Justice, supported by the U.S. Department of Homeland Security's SAFECOM Program, hosted a summit in Seattle, Washington, to share best practices and lessons learned.

Following that successful meeting, the same Federal partners sponsored the 2006 National Interoperability Summit in Austin, Texas, on May 24 and 25. The 2006 summit focused on management challenges in interoperability initiatives, targeting key project sponsors and steering committee members for attendance. Summit participants engaged in an open discussion with colleagues from across the country on what aspects of their projects work well, what can be done better, and what assistance Federal agencies can provide to improve future projects. Both summits were hosted by SEARCH, The National Consortium for Justice Information and Statistics.

The two-day summit comprised a mixed format that included plenary sessions and panel discussions, but the five focus groups—which repeated with different participants on the second day to augment the first groups' findings—were the heart of the summit. Through roundtable discussion, summit participants developed **problem statements**, **lessons learned**, **best practices**, **recommendations**, and **resources needed** surrounding the five critical areas of managing an interoperability project:

- Establishing Governance Structures and Agreements
- Analyzing and Documenting Operational Needs
- Project Planning and Management
- Procurement, Contracting, and Vendor Management
- Implementation, Operations, and Performance Measurement.

These proceedings of the 2006 National Interoperability Summit provide an overview of the discussions and excellent recommendations generated by the vigorous discussion and interaction of summit participants.

Wednesday, May 24, 2006

Welcome, Introductions, and Opening Remarks

Dan Hawkins, Director of Public Safety Programs for SEARCH, The National Consortium for Justice Information and Statistics, welcomed attendees to the 2006 National Interoperability Summit. The summit is sponsored by the U.S. Department of Justice (DOJ) Office of Community Oriented Policing Services (COPS), Justice Management Division (JMD), 25 Cities Project, and National Institute of Justice (NIJ), and by the U.S. Department of Homeland Security (DHS) SAFECOM Program.

■ Assistant Chief David Carter, Austin Police Department, Texas

Assistant Chief David Carter of the Austin (Texas) Police Department welcomed summit attendees to what he called the "third safest city in the nation." "Partnerships are the cornerstone of what we need to accomplish in public safety and at this conference," he said. Interoperable communications are essential for effective policing, and critical for day-to-day operations and for incident response. The City of Austin is the major urban center of a 10-county area that would be the hub of a regional response in a major incident. The vision of the Austin Police Department is to achieve seamless automatic roaming across the region. This summit is an opportunity to learn from one another as these important projects are implemented.

■ Carl R. Peed, Director, Office of Community Oriented Policing Services, U.S. Department of Justice

COPS Office Director Carl R. Peed added his welcome to summit participants, stating that this is the second interoperability summit sponsored by COPS, focused on one of the most significant issues to be addressed in years. "The key component to implementing new networks in the public safety community is our ability to collaborate and cooperate," he said, "We are confident we are on the right track." Evaluations from the 2005 Interoperability Summit held in Seattle, Washington, echoed one common theme—the conference needs to be repeated. Mr. Peed recognized the presence and invaluable voice of public safety, Harlin McEwen, who has been an excellent resource to the COPS Office and who speaks for all of public safety on interoperability.

In just over three years, COPS has awarded $250 million to law enforcement agencies in 65 metropolitan regions to develop and upgrade their interoperable communications systems. The partnerships of SAFECOM, NIJ, and JMD with COPS have been invaluable in that regard. Director Peed extended his thanks to SEARCH for hosting the summit and for providing the *Law Enforcement Tech Guide for Communications Interoperability, A Guide for Interagency Communications Projects*, published by COPS and endorsed by SAFECOM. "The real prize of interoperability is the ability to coordinate operations as needed." he said. "Crime and emergencies do not stop at the state line. If there is a fire emergency, there is a police emergency." The message is coordination, collaboration, and partnerships—Federal-to-Federal, Federal-to-state, state-to-local, and discipline-to-discipline.

Dr. Paul R. Corts, Assistant Attorney General for Administration, U.S. Department of Justice

Dr. Paul R. Corts, Assistant Attorney General for Administration, U.S. DOJ, commended the summit attendees for carving out the time from their busy schedules to attend this important meeting. The Justice Management Division responded to 9/11 with its 25 Cities Project. The idea was to create an immediate improvement in interoperable communications at significant major metropolitan areas, Dr. Corts said. The importance of assembling all stakeholders was one of the lessons learned from this project. At the same time, the importance of addressing the broader issues of the lack of Federal interoperability and communications among the Federal partners became clear. The Integrated Wireless Network program (IWN) is working to address the interoperability of Federal agencies across the nation, with mutual aid and connectivity with local, state, and tribal partners an additional component.

"In most of the 25 Cities, we have augmented existing local partnerships and efforts," Dr. Corts said, "and we have learned that in these communities there was a small nucleus of people who make things happen—the community 'champions' who can serve as facilitators to move these projects forward." The hard work of developing interoperable solutions must be accompanied by exercises, procedures, and training to respond to emergencies, efforts which are integral to the effort. Without training and procedures, the technical solutions will diminish greatly in value.

Tony Frater, Deputy Director, Office of Interoperability and Compatibility, U.S. Department of Homeland Security

Tony Frater, Deputy Director of the Office of Interoperability and Compatibility (OIC), U.S. DHS, welcomed attendees on behalf of the department. "In the past, each Federal agency has sponsored its own conference," he said, noting that Director Peed and the COPS Office are to be congratulated for assembling the Federal partners and programs, and for focusing the attention on the valuable information, lessons learned, and feedback the practitioners provide.

Key Interoperability Issues in the United States

■ Harlin McEwen, Chair, Communications & Technology Committee, International Association of Chiefs of Police

Chief Harlin McEwen, Chair of the Communications & Technology Committee, International Association of Chiefs of Police (IACP), provided an overview of interoperability issues today at the local, state, and national levels, calling this "an exciting time for public safety communications." There are three priorities in public safety telecommunications today, he said:

- Priority #1: *Reliable* agency-specific voice communications. This refers to the public safety mission-critical, everyday voice communications.
- Priority #2: *Reliable* interagency voice communications, or what is commonly referred to as "interoperability."
- Priority #3: *Reliable* data communications. The increasing need public safety has for access to secure text messaging, documents, photographs, diagrams, and streaming video.

What do reliable communications mean? ***Whenever public safety personnel need to communicate, it works.*** The first responder can reach the intended target directly or through a network; there must be an available radio channel; and the radio must have power. Reliable communications requires that public safety must plan for everyday peak service times and large incidents. Public safety must allow for radio system disruptions such as power outages, tower failures, and system interconnect failures; for personal radio equipment failures such as battery failure; and for catastrophic wide-area failures of all of the above.

What do reliable communications mean?

Whenever public safety personnel need to communicate, it works.

Chief McEwen noted that disasters are fairly common to public safety and usually handled locally, but Hurricane Katrina was a catastrophe affecting 90,000 square miles and four states that brought different challenges. There have been a number of specific lessons learned from communication failures that occurred during Katrina, but the all-encompassing lesson is that public safety must be prepared for more than the short-time outages traditionally anticipated.

Six outcomes from Katrina failures stand out, he said. These are–

1. Tower/infrastructure failures.
2. Power failures of tower sites, dispatch centers, and portable radio batteries.
3. Failures of public switched telephone network (PSTN) and network infrastructure (microwave and landline).
4. Public safety personnel issues.

5. The need for deployable systems that can be brought in where infrastructure is temporarily out of service or destroyed.
6. The knowledge that satellite communications are only a partial solution.

COWS (cellular on wheels) have been used by commercial systems for some time. In large-scale catastrophes, public safety needs similar deployable systems and mobile satellite systems. During Katrina, satellite services failed because batteries failed; personnel were not familiar with satellite radios and how they operated; and satellite radios are not practical for local area communications and limited to one-to-one communications.

National Public Safety Network Issues

The Senate Committee on Homeland Security issued a report on Katrina, recommending that, "DHS should develop a national strategy, including timeframes, for implementing a survivable, resilient, national interoperable communications network." Chief McEwen said he believes that this approach oversimplifies the problem. All public safety personnel do not need to be able to talk to all other public safety personnel. A nationwide network may not be practical or affordable; nevertheless, there are currently two proposals on the table to develop national networks: one from M/A-COM, dubbed the National Interoperability Network for Disaster Relief (NINDR), and one from Cyren Call, referred to as the Public Safety Broadband Trust (PSBT).

Public safety should be able to deploy government-owned next generation data services of the type that are being delivered today by cellular commercial services.

NINDR proposed an Internet Protocol (IP) national network that would cost only slightly more than $1 billion and could be implemented within months that would connect local and Federal mutual aid channels to an IP network. Chief McEwen thinks the proposal is impractical because simply tying together mutual aid channels would do very little to solve interoperability problems.

The PSBT proposed by Morgan O'Brien, a co-founder of Nextel and now Chairman of Cyren Call Communications, would establish a public safety broadband trust that would hold the license for a 30 MHz block of cleared spectrum in the upper 700 MHz band. PSBT would negotiate terms for long-term access to the spectrum with private entities that would agree to build and maintain a nationwide, next generation network for public safety. PSBT would set appropriate rules and technical standards to ensure backward compatibility to existing public safety systems, maximum interoperability, reliability, redundancy, competition, innovation, and choices for public safety. The network would include a satellite-based element to ensure continuous operations when ground-based equipment is knocked out. Chief McEwen believes that this proposal has merit and could be very beneficial for public safety; however, there are significant obstacles. Current law requires the Federal Communications Commission (FCC) to auction the 30 MHz of spectrum, the proceeds of which would provide $10 billion to reduce the Federal deficit. Of that, $1 billion has been assigned to public safety communications, to funds for

subsidizing the purchase of TV set-top converter boxes (which convert digital to analog), and to funds for E9-1-1 systems.

Wireless Data and Information Sharing

In recent years, Chief McEwen said, law enforcement information sharing has rapidly expanded from fixed office terminals to wireless delivery of data to the field. Public safety should be able to deploy government-owned next generation data services of the type that are being delivered today by cellular commercial services. Due to lack of radio spectrum assigned to public safety, public safety has been limited to narrowband slow-speed 25 kHz radio channels in the VHF, UHF, and 800 bands, which is only practical for text messages.

Public safety has been limited to using cellular and other commercial data services for higher data rates. Spectrum in the 4.9 GHz band provides one opportunity for access to high-speed data. Another emerging option for public safety is the use of community systems using unlicensed 802.11 WiFi broadband, but this is not secure for public safety use. Public availability can also overload the network and provide slow or no service.

In 1997, the FCC assigned 24 MHz of radio spectrum previously assigned to television broadcasters to public safety in the 700 MHz band. In 2006, a law was passed requiring broadcasters to vacate the spectrum by 2009. The spectrum provides narrowband and wideband channel potential. "In February 2006," Chief McEwen said, "the National Public Safety Telecommunications Council (NPSTC) sent a letter asking the FCC to revisit the data portion of the 700 MHz public safety spectrum. As a result, in March 2006, the FCC issued a Notice of Proposed Rulemaking (NPRM) inviting comments on the proposal to allow more aggregation of channels to authorize 1.25 MHz broadband channels."

The current rules for the 700 MHz band allow for 50 kHz wideband channels and allow three channels to be aggregated into one 150 kHz channel. They also provide for 18 wideband interoperability channels. NPSTC will file a suggested band plan with the FCC that provides the flexibility for regional decisions on wideband and broadband channels, while protecting the narrowband voice channels from any changes.

In concluding, Chief McEwen stressed the need to stay focused mainly on mission-critical voice *operability*, with a goal to improving voice *interoperability*, while at the same time remaining aware of newly emerging opportunities to improve access to the data services that are rapidly becoming mission critical for public safety.

National Initiatives Update

■ Keith Young, Program Manager, Office of Grants and Training, U.S. Department of Homeland Security

Keith Young, Program Manager in the DHS Office of Grants and Training (G&T), briefed attendees on the progress of the Interoperable Communications Technical Assistance Program (ICTAP), a technical assistance program offered by G&T. From fiscal years 2003 to 2005, Mr. Young said, over $5.6 billion in homeland security funds went to grantees, with $1.8 billion used to procure interoperability equipment. ICTAP provides free technical assistance to enhance interoperability communications to Urban Area Security Initiative (UASI) and state homeland security grantees of DHS, offering guidance, training and exercises, and technical assistance on optimal solutions for varying urban areas.

ICTAP's mission has been to enhance public safety interoperability in response to weapons of mass destruction (WMD) threats; improve the capability to communicate with whomever, whenever, and wherever needed; leverage existing efforts; and provide end-to-end planning and assistance. ICTAP provides policy services such as governance, needs analysis, solutions, and implementation, including tabletop exercises to identify gaps and solutions. ICTAP's technical partner has developed a tool, CASM (Communications Assets Survey Mapping), to map assets and graphically illustrate an interoperability matrix that depicts equipment and agency-to-agency interoperability.

"The big focus this year is on Tactical Interoperable Communication (TIC) Plans and evaluations," Mr. Young said. Each FY 2005 UASI region was required to develop a plan for tactical interoperable communications, defined as the rapid provision of on-scene, incident-based, mission-critical voice communications among all emergency responder agencies as appropriate for the incident and in support of the National Incident Management System (NIMS) model. Each plan is to be tested through a validation exercise by September 2006. The TIC plan comprises information about the urban area, its governance structure, interoperability equipment, policies and procedures for interoperable equipment (standard operating procedures), incident plan for tactical communications, and communications unit leader training.

By definition, TIC plans must be rapidly deployable at any time, 24/7. Capabilities provided through the plan should be fully operational within one hour of an incident, which may be provided through the use of radio caches, shared channels, gateways, or shared systems; and should always be in support of long-term interoperability planning and efforts. In support of development of TIC plans, ICTAP held three one-day training workshops in conjunction with other interoperable communications workshops being provided by the COPS Office. In 2003, there were six requests for assistance; in the next year there were 20, and currently technical assistance is being provided to over 70 urban areas and territories. TIC plans are currently in the process of evaluation and review by subject matter experts (SMEs) from local, state, and Federal first responder communities.

Lessons learned from ICTAP assistance are posted on the Lessons Learned Information Sharing (LLIS) website at www.llis.gov. For more information, visit the ICTAP website at www.ojp.usdoj.gov/odp/ta_ictap.htm.

Tony Frater, Deputy Director, Office of Interoperability and Compatibility, U.S. Department of Homeland Security

Tony Frater, Deputy Director of the OIC, U.S. DHS, briefed attendees on the SAFECOM Program, a practitioner-driven program established in 2001. SAFECOM is focused on standards, architecture, a public safety Statement of Requirements (SoR), and on the provision of tools to enhance interoperability, all of which are based on the SAFECOM Interoperability Continuum (see Figure 1). Version 2.0 of the SoR is scheduled to be released in the next 6 months.

SAFECOM is currently working on the National Baseline Survey, a quantitative survey that will measure the nation's capacity to be interoperable. The survey was issued last week to 22,400 randomly selected police, fire, and EMS agencies. The results will provide a snapshot of the nation's interoperable status, based on the Interoperability Continuum.

SAFECOM also recently published a lessons learned document on the experience of the Commonwealth of Virginia, regarding their Statewide Communications Interoperability Plan (SCIP) and critical success factors for implementing it.

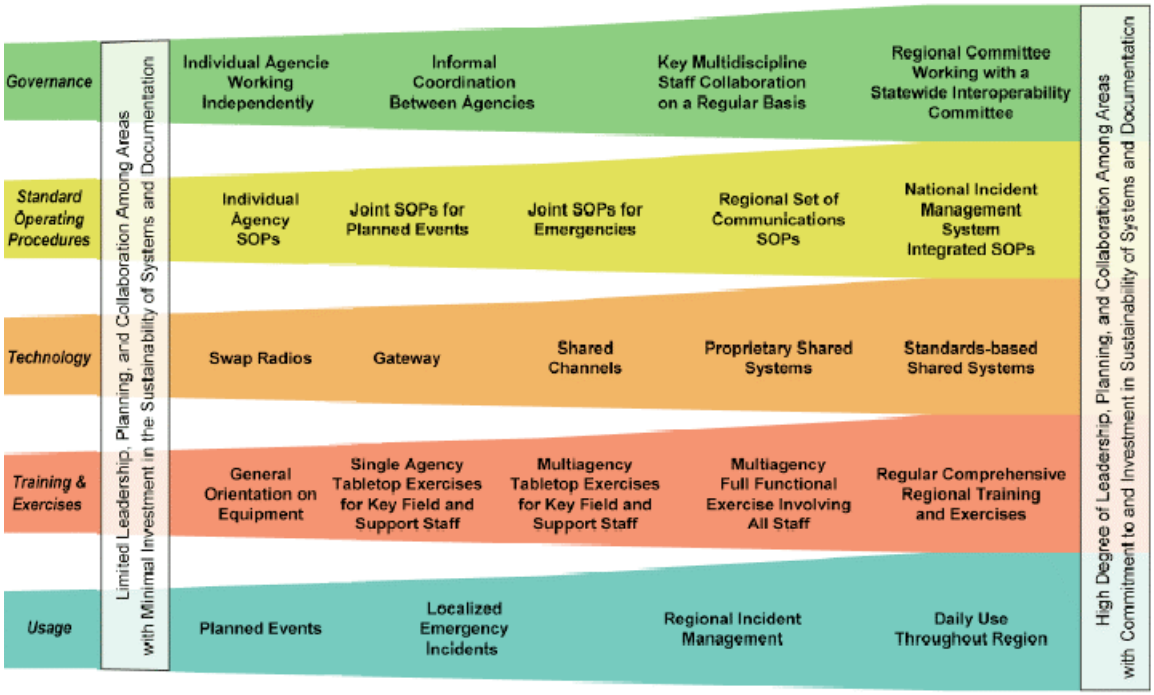


Figure 1: SAFECOM Interoperability Continuum

Dereck Orr, Program Manager, Office of Law Enforcement Standards, National Institute of Standards and Technology

Dereck Orr, Program Manager with the Office of Law Enforcement Standards (OLES), National Institute of Justice (NIST), briefed attendees on the Project 25 (P25) standards development program at OLES, an agency with a mission focused on the needs and requirements of public safety. The OLES has liaisons with industry to communicate those public safety needs, encouraging manufacturers to build to those requirements. NIST OLES has strong ties and partnerships with NIJ, SAFECOM, and COPS.

In November 2005, Mr. Orr briefed Congress on the status of P25 standards. He said they were not where they should have been at the time, but the message has changed today. P25 was created to be a suite of standards that would define the interfaces of future digital land mobile radio systems. Eight interfaces were intended to be open interfaces so components could be switched out from various manufacturers. As of six months ago, only one of the interfaces—the Common Air Interface (CAI)—was complete, but the remainder continued to be proprietary. Today, a fixed-station interface is complete and the inter-RF subsystem interface (ISSI) will be complete this week. These are key pieces of the P25 system model that will allow disparate components to be linked and allow roaming between systems. There will also be a basic interface for the console subsystem.

The approval of these four interfaces is having, and will have, a significant effect on public safety, with manufacturers building to the standards and public safety making requests for compliant equipment part of their Requests for Proposals (RFPs). Practitioners, the Association of Public-Safety Communications Officials–International (APCO), and others have made the importance of the next interfaces a priority. Work is still taking place on the new three interfaces that is expected to continue through January 2007.

The International Wireless Communication Expo (IWCE) was held in Las Vegas, Nevada, May 17-19, 2006. "IWCE has become much more focused on public safety with a half-day session focused on P25," Mr. Orr said. "Manufacturers there said that public safety will have the ability to retrofit equipment to meet the newly approved interfaces." In response to a question regarding whether salespeople educate the public safety buyer, Mr. Orr said public safety has to know how to ask the right questions about what their systems will or will not do.

The P25 Assessment Program is a compliance program that seeks to assure that P25 equipment actually has open standards as claimed by the manufacturer. SAFECOM and G&T will tie grant funds to compliance with the P25 Assessment Program. The manufacturers will pay for the product testing. The program should be up and running by December 2006 and will become a certification program over the long term.

NIST has been SAFECOM's technical partner on the SoR Version 1.1, which is focused on the functional requirements of public safety. The next step is to create technical requirements based on functional requirements for which manufacturers can build. The first set of technical requirements focuses on the technical parameters that define the quality of service for mission-critical voice and acceptable quality for tactical and surveillance video.

Project Case Studies

- **Moderator: William Romesburg, Law Enforcement Information Technology Specialist, SEARCH**
- **Steve Proctor, Executive Director, Utah Communications Agency Network**
- **Jesse Cooper, Communications Manager, Phoenix Police Department, Arizona**
- **Tom Sorley, Manager, Orange County Public Safety Communications, Florida**

William Romesburg, Law Enforcement IT Specialist with SEARCH, moderated a panel discussion focusing on the various elements of managing an interoperability project. Steve Proctor, Executive Director, Utah Communications Agency Network (UCAN); Jesse Cooper, Communications Manager, Phoenix (Arizona) Police Department; and Tom Sorley, Manager, Orange County (Florida) Public Safety Communications, each provided brief snapshots of their projects and answered questions on lessons learned.

UCAN: Background

The UCAN project began with a $180,000 task force study initiated by the governor 13 years ago. UCAN developed a self-governed, regional trunked network, with 15,000 users that initially covered about eight counties (now up to 15). UCAN was tested by the 2002 Olympics hosted by Salt Lake City; the system provided communications not only for all of public safety, but also for all of the Games' functions. The quick turnaround imposed by the need to develop a system by the time the Olympics were held was critical. The process of developing the system went through two sessions of the Utah Legislature, which formally adopted legislation to formulate UCAN. The system uses about 200 of the NPSPAC (National Public Safety Planning Advisory Committee) channels and 419 repeaters over 58 sites, and processes 250,000 calls every 24 hours.

Phoenix and Mesa, Arizona: Background

The cities of Phoenix and Mesa in Maricopa County entered into an agreement in the 1990s to design and build a joint communications system. An intergovernmental agreement (IGA) was formalized in August 2003. They issued an RFP in the late 1990s and decided on an APCO P25 800 MHz system. The system supports 34 sites, 121 channels, and covers 2,000 square miles. Going from a VHF simplex to a digital encrypted 800 system has been well received. Within the U.S. DOJ 25 Cities project, PSAPs (Public-safety Answering Points) around Maricopa County tied together disparate radio systems through the use of RF control stations, which were well tested in April 2006 during an immigration march with over 100,000 people taking to the streets. The project has received a COPS grant to add the City of Tempe and Town of Apache Junction to the system and is currently in the planning stages of requirements gathering and documentation at this time. They also have a DHS demonstration project that will overlay a VHF trunked system with the cities to tie in Federal partners in the area.

Orange County Region, Florida: Background

Orange County received a COPS grant three years ago to build out a set of five mutual aid channels in nine counties in one region in the State of Florida. When the City of Orlando and the region received the opportunity to apply for the grant, they were expected to meet a rapid turnaround. The county was able to respond quickly because of its involvement in the Regional Domestic Security Task Force (RDSTF), a multidiscipline task force in nine regions across the state created after 9/11. That structure allowed the state to pull together the technical and finance staff from nine counties in two days to decide upon goals and achieve them. The task force decided not to use gateways because there were not many overlapping coverage areas in the region, which gateways require. Instead, they determined to build out mutual aid channels to supply infrastructure for the region. The initiative focused on training and standardization. Since inception of the project, they have applied the model from the first region and, with the help of DHS funds, are applying that model for all bands across the state for mutual aid.

Project Governance

UCAN: The ongoing governance board consists of five members of state government appointed by the governor (one of whom is the state treasurer), and 10 members of local government, who are elected by the membership from local government representatives. The group makes decisions, sets rates, and determines expansion and needs in a forum where all on the system—120 agencies—have a voice. "We pay for the privilege of governing ourselves," Mr. Proctor said. Five positions on UCAN's board are mandated by law: The four directors of the state departments that use public safety communications and the state treasurer. For the remainder of the positions, UCAN wanted people from the management level with experience in budgets, projections, and the business of public safety operations. These include fire chiefs, sheriffs, paramedics, and a Department of Transportation representative, all whom understand the process of management decisions and operational issues. Users pay a network fee, but user agencies maintain their own subscriber equipment. The governance structure relies on an attorney, financial advisor, financial projectionist, and bond attorney. The state treasurer handles any surplus funds to be invested. UCAN maintains all infrastructure as part of the agreement.

Phoenix/Mesa: The system was designed and implemented before a governance system was really organized. It began with informal discussions about the need for a system in both cities. The voters provided bond funding. "What we didn't realize would happen was that even prior to implementation, many agencies came to the table looking to join the system," Mr. Cooper said, "but we didn't have a governance system to implement that expansion. We're still struggling with that." Cities need to determine who sits at the table and who authorizes financial decisions. When upgrades are needed, how are cities in the region that can't afford that growth included? Going backwards and putting governance in place after the fact has been very difficult.

Orange County Region: Governance on this project was accomplished on the financial side of the house, flowing from the RDSTF structure. Each member county controls its own infrastructure. Therefore, after the installation, there is basically no governance

structure. This was intentionally done to ensure buy-in to the project and to avoid the appearance of dictating usage to other counties when the project was initiated.

Programming Radios

UCAN user agencies can program radios after receiving an approved template that includes the system interoperability channels. **Phoenix/Mesa** do the programming for all users and also assign common interoperability channels. **Orange County** allows the agencies to program their own subscriber radios and is grappling with the problem of a lack of common nomenclature. Names for talk groups are often assigned based upon the agencies' own needs, but in a mutual aid situation, talk group/channel identification needs to include the agency name. The region is going back to retrofit radios to assign common channel names.

Maintaining Quality of Service Across all Jurisdictions

UCAN tries to maintain a 5 percent air rate of access for channels, but experiences about a 1 percent busy rate. If there are problems, they immediately investigate by adding another channel or offloading a talk group to other sites. The system is maintained 24/7. **Phoenix/Mesa** maintain a 2 percent rate of service, and ask future partners to maintain that rate of service. With 10,000 users, they do not have busies and they do not want to lose that level as they expand. **Orange County** does not have a defined rate of service. The region has 20,000 users and if they have a busy, they investigate. They tightly controls the talk group creation process, which they find is more critical than the number of subscribers.

Discussion ensued regarding volunteer fire departments that cannot afford radios. A few counties in Utah have offered to pay for them and UCAN has offered volunteer fire departments access at half the normal rate because they're on the system half the time. Florida does not have volunteer fire departments but does experience a similar problem with very small police departments that can't upgrade or buy equipment. Florida levies a $12.50 surcharge on traffic tickets that can be used for intergovernmental radio systems.

Needs Analysis

UCAN: The needs analysis conducted for the Olympics component was a secondary operation because the Olympics Organizing Committee (OOC) came to UCAN after they'd completed an initial needs analysis. UCAN performed an additional needs analysis to support 6,000 more radios in 42 venues over several hundred square miles after the OOC approached them.

Phoenix/Mesa: When the system RFP was issued, the cities had objectives and expected requirements, but today they are discovering that some needs have changed. The needs of police, fire, and EMS differ. They learned the need to be flexible and to compromise.

Orange County Region: The concept for the grant process was simpler because the region was providing mutual aid levels of coverage, not developing primary interoperable communication systems. The needs analysis focused on the level of coverage needed.

The project team knew that four 800 MHz channels were available, with one county using VHF, which would require building out 800 MHz coverage for them. The project team developed a package with scenarios and a basic "Interoperability 101" presentation to convince non-technical RDSTF people of the need.

Project Management

UCAN: The UCAN project team took a risk. As the legislative process to formulate UCAN was unfolding in the State Legislature, the project team was already writing the RFP. The project plan envisioned a base of users with 30 percent growth. The initial cost per unit was $50 a month; now it's down to $22.50; the team projected 30 percent growth of the system, but it has been 50 percent. Mr. Proctor was the single project manager, which was a full-time-plus job. The key attribute of a successful project manager is an ability to take criticism and to keep your eye on the horizon, that is, the overall vision, he said. As they created a contract with the vendor, UCAN hired someone with experience in multiagency systems to review the contract. As the system is built out, contingencies will arise requiring compromise. UCAN has also asked the vendor to present to the UCAN Board when an issue that requires compromise occurs.

Phoenix/Mesa: Mr. Cooper said it was key to hold vendors accountable, to not to allow them to drive the project, and to meet the needs of subscribers. The site had a dedicated project manager and lead representatives from each of the agencies who could commit resources for their particular agency. Regarding the contract with the vendor, Mr. Cooper said they probably should have spent more time nailing down specifics, not "dealing with that later" issue resolution, and who pays for the time to resolve those details—the agency or the vendor.

Orange County Region: Mr. Sorley was the overall manager of the regional project plan, with a manager designated for each of nine counties. All the project managers had full-time jobs, with no clerical or consulting support built into the plan, which is a big problem. Managers need persistence to keep people on track when they cannot fit the time or ability to move things through their bureaucracies into their full-time jobs. The agreement with the vendor eventually chosen did not actually include a contract, but was accomplished by a purchase agreement that included language requiring compliance with all elements of the RFP.

Performance Measurement

UCAN's defined performance measure was 95 percent portable coverage, on the hip, inside the major buildings constructed at the time the system was complete. Performance met the defined specifications. **Phoenix/Mesa** asked for 95 percent portable coverage throughout the cities and performed quarter-mile testing in a grid in high rises, residences, etc. The TIC Plan exercise will certainly demonstrate how they have done, Mr. Cooper said. **Orange County** is conducting coverage testing right now, but is not implementing a whole new system. Operational staff need to be part of this evaluation, Mr. Sorley said. "In recent weeks, Florida has suffered wildfires and it is helping us develop good documentation from the user's perspective on how and if it works. The users don't need coverage percentages; they need to know what button to push."

Luncheon Keynote

- **Robert Gurss, Esq., Director, Legal and Government Affairs, Association of Public-Safety Communications Officials – International, and Telecommunications Attorney, Fletcher, Heald & Hildreth, PLC**

Robert Gurss, Director of Legal and Government Affairs for APCO and a telecommunications attorney, delivered the luncheon keynote and discussed the current regulatory aspects of interoperability. Ideally regulation should promote interoperability, Mr. Gurss said, but that hasn't always been the case, as has been exemplified by previous FCC spectrum allocations to public safety. Public safety communications were neglected at the FCC prior to 9/11, but following that event and Hurricane Katrina, that attitude is changing as Washington, D.C., has become increasingly aware of the importance of public safety telecommunications interoperability.

One of the most important regulatory issues the FCC has addressed in recent times has been the allocation of 700 MHz that will be transferred from television broadcasters to public safety.

Spectrum allocation and management are the primary issues affecting public safety that are handled by the FCC. Several months ago, FCC Chairman Kevin Martin announced that he was creating a separate bureau focused on homeland security, raising the importance of the issue within the Commission.

One of the most important regulatory issues the FCC has addressed in recent times has been the allocation of 700 MHz spectrum that will be transferred from television broadcasters to public safety, an effort with an almost 10-year history. The FCC allocation of 24 MHz of spectrum will double the public safety allocation. The additional spectrum will be available in January 2009, the date certain by which broadcasters must vacate that portion of the spectrum.

Currently, the spectrum is allocated for narrowband, 12.5 kHz voice and wideband data up to 150 kHz in channel width. Portions have been set aside for statewide licenses, while others will go to the regional planning process administered by the 55 Regional Planning Committees (RPCs) in the country. These regions generally follow state lines, although Texas has six regions and California has two. Once the regional plans are complete, other entities will be able to access those frequencies.

Why is this 700 MHz spectrum allocation important for interoperability? While it does not solve the interoperability problem, it does provide more needed spectrum. Additionally, this spectrum is adjacent to 800 MHz systems and will be interoperable with that spectrum and will provide the capacity to expand those 800 MHz systems. The FCC has also dedicated interoperability channels within that 700 MHz band that will have to be Project 25-compliant.

Broadband issues are being raised in 700 MHz, including the question of exploring whether some of the current wideband channels should be reallotted to facilitate 1.25 MHz channels in that spectrum. This raises associated issues about whether there should be data interoperability, as well as issues of interference and standards. Even if the FCC

does allow broadband within that band, this spectrum will not be enough for public safety's broadband needs. There is an additional 30 MHz available in that band, also currently dedicated to television stations, that would help to answer that need. This spectrum is slated for FCC auction. The Cyren Call proposal (see Page 7) identifies that to-be-auctioned spectrum as the spectrum that should go into a public safety trust. This trust would be managed by spectrum managers and would be leased to commercial entities, which would be required to meet public safety needs and prioritize public safety's use of that spectrum. The projected $6 billion that the spectrum auction would provide would have to be addressed.

Narrowbanding and 800 MHz rebanding are two issues that will affect all public safety agencies. Rebanding—the FCC-mandated effort to move Nextel's presence from the public safety bands in 800—is underway, managed by the Transition Administrator (TA). Nextel is paying for this rebanding effort. The planning process has bogged down a bit because agencies need to negotiate planning funding in order to take the next step of actually negotiating the rebanding with Nextel. Accomplishing the rebanding without undermining the interoperability that already exists in areas using 800 MHz is very complex.

Narrowbanding below 512 MHz, also referred to as spectrum refarming, is an FCC requirement that will require transitioning from 25 kHz channels to 12.5 kHz channels by 2013. Fortunately most equipment sold today has been built to accommodate the new requirements.

APCO, the NPSTC, the IACP, the International Association of Fire Chiefs (IAFC), and others have worked hard on the same goal to proactively ensure that regulatory activities enhance interoperability and public safety telecommunications.

Mr. Gurss responded to questions from the summit participants. Questions and answers included the following:

- Regarding the prognosis for a successful treaty completion with Mexico on border issues: There is a growing concern regarding 700 and 800 MHz rebanding on the Mexican border, and on the Canadian border regarding 800 MHz rebanding. This is a State Department issue that is being pursued.

- Regarding narrowbanding, and whether or not an agency's data system is affected: Yes, there is an equivalency rule that allows the continued use of 25 kHz channels.

- Regarding the question of whether a state can operate on 700 MHz without a state plan: Yes, there are two ways to get a 700 MHz license—by operating on a state license or on geographic licenses that don't require licensing sites.

- Regarding the "buzz" on a *MissionCritical* article stating that the TA has cost $29 million so far in the rebanding effort: The TA's job is huge and they are making a lot of money. It is also true that money hasn't been flowing to public safety. Hopefully the fast track option will save some of those planning and money

approval struggles. The total cost of the entire rebanding was projected at $2.5 billion.

- Regarding the rebanding and how to switch NPSPAC channels within the four waves: The TA is flexible enough to understand they have to make adjustments to preserve interoperability. If an agency can't come to agreement with the TA, there would be a mediation process and the FCC would ultimately decide, but that hasn't happened yet.

Focus Group Discussions

Following lunch, summit participants split into five different focus groups to discuss the various stages of an interoperable communications project. SEARCH staff facilitated each of the sessions. Through roundtable discussion, summit participants developed problem statements, lessons learned, recommendations, and resources needed surrounding five areas of managing an interoperability project:

- Establishing Governance Structures and Agreements
- Analyzing and Documenting Operational Needs
- Project Planning and Management
- Procurement, Contracting, and Vendor Management
- Implementation, Operations, and Performance Measurement.

On the following morning, summit attendees separated into five new focus groups to review the work of the previous groups and expand on the original input. Late Thursday morning, the focus groups reported their findings at the final plenary session.

Thursday, May 25, 2006

Group A: Establishing Governance Structures and Agreements

- **Reporting Out: Steve Webb, Los Angeles County Sheriff's Department, California**
- **Facilitator: Kelly J. Harris, Deputy Executive Director, SEARCH**

Governance establishes a decisionmaking structure for projects that provides leadership and accountability, defines the business of the agency, analyzes technical environments, policies and solutions, and effectively manages projects, says the COPS Law Enforcement *Tech Guide*. It is necessary to ensure that there is a well-defined decisionmaking structure with clear responsibilities and authority, that the structure is officially sanctioned, and that it involves users to address problems.

Projects require structure and disciplined rules if they are to be successful. The decisionmaking structure defines the project's "chain of command," documenting the roles and responsibilities of the various people responsible for project actions.

Write it down. Document authority, roles, responsibilities, structure, and procedures.

Why is governance critical to the success of the effort? The consensus of the focus groups: *Nothing else works without it.* Good governance avoids problems in the future; achieves buy-in from your stakeholders; establishes responsibility, authority, and accountability; legitimizes actions; and allows the group to maintain a strategic vision. Over the long term, after the grant or project initiation is over, governance provides continuity, direction, and stability, and can open the door for other projects and future grant funding. Assembling multiple partners in a formal, structured group decreases duplication of efforts and allows agencies to leverage their needs and the resources of the partners.

"Formal" and "structured" are important elements of a governance structure. An ad hoc structure guarantees failure. Governance requires documented authority, structure and procedures, bylaws, a charter, and defined roles. There can be complex legal issues when operating as an ad hoc group that makes decisions with financial implications.

> *"Governance becomes extremely important when you start talking about money. We can all agree we need technology, but the rubber hits the road when you talk about sharing assets and someone's got to write a check."*
>
> "*It's the focal point for collaboration and cooperation; if there's clear direction and cooperation at the higher level, turf issues disappear at the lower level."*
>
> *"You need the continued engagement of your executives to avoid busy leaders delegating participants without power to attend as a project goes on. The*

decisionmaking gets watered down. To avoid this, governance structures need bylaws regarding who can vote."

What are the challenges with governance? The challenges are myriad; in particular, finding a balance between unequal partners, dealing with the realities of unequal financial contributions and levels of power and decisionmaking, and deciding how to balance voting based on contribution or presence.

In the best case scenario:

"*It gives all stakeholders—not just the larger groups—a voice at the table"*; however, *"It's a real problem when one agency perceives they lead the effort, tells everyone else what to do, and calls that governance."*

There are various solutions to the problems of partners with unequal "weight":

"In Rochester County, it's one agency/one vote. One agency has 750 sworn, one has five. If the smaller agencies did not have an equal vote, they might not come to the table. This has worked since 1974."

"The needs of fire service and law enforcement differ. In our county, there were 19 fire agencies and six police agencies. One agency/one vote might work in some areas, but not at all in others."

"*In Los Angeles, there are 52 local law enforcement agencies, 35 fire districts, plus other public safety representatives including representatives of the police chiefs of the 88 cities in the county, Federal, and health department representatives, but there are only 9 voting members on the governing board. The voting members are based on size, resource, and usage. Size matters, but representation for all agencies matters as well. Through a representative, they have a voice based on a sliding scale."*

Educating and engaging elected officials and/or decisionmakers and keeping them involved is another challenge. Develop an outreach communications plan to engage elected officials. Structured communications—one-pagers, presentations, etc.—that convey a consistent message and that are attributed to the governing group both educate and create public and political interest in projects.

Time and competing structures are a challenge; there are often too many initiatives that require similar governance structures and too many meetings that are often attended by many of the same people. Also issues: Keeping participants engaged over time and handling the turnover of personnel before the initiative is complete. Projects of this size often benefit from a "champion," or outspoken leader who has the political clout to get things accomplished. It can be a challenge to find a second champion when the first one leaves or is voted out.

"*You need to institutionalize the role or create a statute to ensure the initiative does not break down when key leaders retire or otherwise leave and new leaders take over."*

The "human factor" is a challenge in developing and maintaining a governance group. Interagency and intra-agency dynamics can get in the way of the big picture of interoperable communications. Governance offers a method for seeing beyond the individual agency, and breaking down regional and discipline and funding barriers.

> *"The reality of these broad-based initiatives is individual, participating agencies must look beyond their own organizations. Interagency dynamics is a challenge based on the natural differences in our missions, funding, and political leaders, but we have a common challenge that we're working on."*

As part of the formal structure, it is important to spell out the process for stakeholders to bring problems to the board.

> "*When you develop your governance structure and procedures, develop a formal process that people can access to get their voice heard and the documentation that indicates that their voice was heard."*

Based on the discussions of the breakout groups over two days, the following problems or challenges, lessons learned/best practices, recommendations, and resources required should be considered when establishing governance structures and agreements:

Problems/Challenges

- The ability for all stakeholders to have equal representation and access to decisionmaking process.
- Engaging decisionmakers (at various levels and organizations) and garnering their support, education, and buy-in.
- Inter- and intra-agency dynamics.
  - How to look at the big picture of communications.
  - Looking beyond individual agencies for the common good.
  - Dealing with natural barriers that result due to regionalization, as well as different disciplines that have differing missions, goals, objectives, and funding streams (e.g., police and fire).
- Operating in an ad hoc fashion.

Lessons Learned/Best Practices

- Creating balance for a fair fight.
  - One agency/ one vote.
  - Voting based on sliding scale (land mass, population, contribution).
- Lowest-level person in each organization who has or is given the authority to vote participates on the active governance structure.
- Less is more in terms of representation; make sure all of the stakeholders who are within project "scope" are represented, but avoid big groups where little can get accomplished.
- Allow a call for a second vote when there is disagreement or failure to reach unanimous consensus.
- Establish an executive board to the governance structure.

- ❑ Create a charter. This imbues legitimacy; it has to be agreed upon by all; it defines roles, the project, decisions, and responsibilities; and it establishes rules of engagement. It could include a commitment of resources.
- ❑ Create an organizational structure and clearly define roles.
- ❑ Create a document that formalizes the group that is appropriate for the particular group (e.g., a memorandum of understanding at the local level, an executive order at the state level).
- ❑ Provide project management and administrative support to the governance group.
- ❑ Create a common message, such as through "one pagers," presentations, etc., to convey common messages across the state. Message must be attributed to the group, not one board member.
- ❑ Create a mechanism to offer structured communications about the initiative to a variety of audiences at differing levels of detail.
- ❑ Identify a champion to spearhead the initiative, particularly with high-level decisionmakers and funders.

Recommendations

Challenge #1: Representation and access to decisionmaking.

- ❑ Make sure the governance structure is driven by the mission of the initiative; in other words, those who participate or are affected by the initiative should have representation in the governance structure.
- ❑ Develop a formal and publicized process for stakeholders to bring issues, ideas, needs, etc. to the governing board.
- ❑ Establish open communications (websites, newsletters, city council) and a communications plan that articulates the types of communications that will be provided to different audiences.
- ❑ Consider using advisory groups as another avenue for garnering stakeholder involvement. While these would not be voting groups, they would have input into the decisionmaking process on key issues.

Challenge # 2: Engaging decisionmakers.

- ❑ Develop outreach/communications plan to engage elected officials.
- ❑ Decisionmakers will provide executive oversight for the governance structure, though they won't be engaged in the day-to-day business of developing plans and policies for the initiative.
- ❑ Develop a constant and consistent message.

Challenge #3: Inter- and intra-discipline dynamics.

- ❑ Develop and agree upon a common objective, developed by the group *prior* to initiative kick off.
- ❑ Educate decisionmakers and those who will be appointing individuals to serve on the governance structure about the roles and responsibilities of representatives they appoint. In particular, decisionmakers should direct their appointees to look at this as an effort beyond the individual agencies' borders and to work toward the good of the whole.

Challenge #4: Ad hoc operations.

- ❑ Avoid ad hoc operations by developing the written documentation already mentioned: the group's formal charter, roles, responsibilities, and commitment to the initiative.
- ❑ Appropriate and documented authority, structure, and procedures. Documentation, procedures, bylaws, charter, roles defined.

Resources Needed

- Dedicate staff (administrative, project management, technical, training).
- Fund project management activities.
- Make documentation available.
- Consider involving external stakeholders, such as legal and finance.
- Governance for dummies/training.
- Help develop justification for funding, i.e., the business case so that governance structures have a tool to argue for continued funding from their jurisdiction.
- Share models from other jurisdictions.
- Create grant guidance/requirements regarding governance structures.
- Technical and operational subcommittees are key to getting the actual work done.

Group B: Analyzing and Documenting Operational Needs

■ Reporting Out: Captain Marlyn Dietz, Wilmington Police Department, Delaware

According to the COPS *Law Enforcement Tech Guide for Communications Interoperability, A Guide for Interagency Communications Projects,* a needs analysis is the organized process of collecting information on what's happening today, the technological environment in which it happens, supported and unsupported needs, and generally what's required of an interoperable system. Since communications interoperability is achieved through a system of systems—both technological and operational—needs are many and varied. Project success pivots on meeting well-understood and defined needs. Needs analysis feeds acquisition, implementation, maintenance, and most other system development efforts.

As the two focus groups reviewed challenges regarding the documentation and analysis of operational needs, several themes were echoed in discussion.

Needs analysis must focus on the operational requirements of end users. Interoperability needs have been defined in technical terms, not operational ones. There was consensus that technical solutions are often sold to agencies before the needs are defined. One participant noted that the technology department thinks they're the customer rather than the user. The user determines whether the project succeeds or fails based on whether they use it or not.

> *"Are we analyzing the needs from the same platform? We frame the discussion of interoperability in terms of equipment versus the need to talk to each other; that's why we get solutions like we need a trunked radio system rather than addressing how we use command and control systems to make talking to one another easier."*

> *"You don't want a million-dollar solution to a hundred-dollar problem. What's the total cost of that operational need and what's the real functional value of the solution?"*

> *"Too many groups have jumped on technical solutions to interoperability with no understanding at all of what they're trying to accomplish. They spend thousands on devices that they may not understand and can create a worse problem than the one they are trying to fix."*

Communication is a function of operations, not the other way around. Failure to understand that leads to problems with understanding, prioritizing, and communicating needs. Use end-user scenario statements to describe operational needs.

> *"Communication is a tool that we use to exercise command and control over an event. What we have to do first is decide what elements of command and control we need to address when we bring different agencies together. How do they work together, who's in charge, who needs to talk to one another, and how does information flow up and down?*"

"Operational needs are getting something from point A to point B; then you develop a process to achieve those needs." And, *"Operational commanders need to define operational needs; techies need to define solutions to the operational needs."*

The focus groups suggested basing need statements on Incident Command System (ICS) incident action planning and management principles.

"ICS and NIMS structures were not successfully employed in New Orleans and, as a result, all the action was reactionary. In Katrina, we had about 30,000 first responders staging out of Baton Rouge, all with radios, but no one was controlling who was talking to anyone else. There was no structure to allow all these Urban Search & Rescue (US&R) teams to interoperate."

"*The UASI-required plan provided us an excellent template that we used to create a plan that we tested yesterday, and that worked."*

Agencies Need Help

The Interoperable Communications Technical Assistance Program (ICTAP) provides technical of assistance to the Urban Area Strategic Initiative (UASI) sites and other recipients of homeland security grants.

The *Law Enforcement Tech Guide* and companion *Interoperability Tech Guide* provide good guidance and specific suggestions on the process.

The SAFECOM Program has several lessons-learned publications on interoperability, including one on RapidCom and one on the Statewide Communications Interoperability Planning (SCIP) Methodology.

Also noted regarding needs requirements: Clearly identify the differences between *needs* and *wants* when performing the needs assessment

"We had 19 agencies who all wanted lots of things. We did our needs assessment in an open setting, which created a totally different dynamic as the peers judged the list of individual needs in a more professional manner, resolving 'needs' versus what were clearly 'wants.'"

"Prioritize needs. User groups in the field can help define needs as the project unfolds by saying, 'We'd like to have x, y, or z, but it's not a high priority.'"

Agencies are looking for help. There were several suggestions that tools and/or a clearinghouse to walk agencies through the process are needed. Some participants said there is a lack of templates for projects or informed guidance for departments talking to vendors.

"*We do a strategic plan every year and every one of those plans is based on the successful strategic plans of other agencies throughout the country. Can't we find successful interoperability projects where police and fire are actually talking to each other and put them on a clearinghouse on the web for other agencies to review?"*

As with all projects, funding is always an issue. One of the questions discussed was whether funding controls the need or if the need controls funding. The consensus was that funding defines solutions, not the needs.

Comments ranged from, "*Never start a project unless you've got full funding for the project,"* to "*In the past, we have suffered from the problem of the grant-funded piece of equipment that doesn't come with associated funding for planning and training support."*

Also noted regarding funding: *"A lot of people have bought technology that they thought would take them out 15 years, but in reality, the vendors have shortened the life cycles. It's not feasible to spend $30 million for a system and then have to go back to the local government in five years and ask for an upgrade."*

Based on the discussions of the two breakout groups, the following problems, lessons learned/best practices, recommendations, and resources required should be considered when analyzing and documenting operational needs:

Problems
❑ Communications is a function of operations, not the other way around. Failure to understand that leads to problems with understanding, prioritizing, and communicating needs.
❑ Technical solutions are often sold to agencies before needs are defined. Vendors distort them.
❑ The *goal* of interoperability is ill-defined and "situationally" determined, making needs analysis difficult. There are varying needs across jurisdictions and disciplines, requiring compromise on needs.
❑ Interoperability needs have been defined in technical terms, not operational ones.
Lessons Learned
❑ Use operational commanders to identify operational needs.
❑ Command staff often don't understand end-user requirements.
❑ A "marketing" plan sets a strategy for needs and documents priorities.
❑ We can be blinded by the past through tunnel vision or seeing current needs through past solutions.
❑ How we do it on the little ones (incidents) determines how we perform on the big ones.
Best Practices
❑ Use Incident Command System incident action planning and management principles in needs statements.
❑ Use end-user scenario statements to describe operational needs.
❑ Use a "marketing" plan to obtain funding.
❑ Consider alternatives and alternative means of presenting needs.
❑ Train, exercise, and perform on a daily basis as we would on the big one.

Recommendations

- Provide funding that can be used for front-end and continuing needs analysis.
- Fund projects based upon a showing of documented operational needs.
- Create a portal with tools for understanding and documenting needs, utilizing an online, web-based, “Turbo Tax” approach. Create a portal that shows how other agencies have met needs, helping others to further understand their own needs.
- Don’t let vendors define your operational needs; do it yourself.

Group C: Project Planning and Management

■ Reporting Out: Steve Proctor, Executive Director, Utah Communications Agency Network

A project plan is a dynamic process that results in a document that guides the entire project design, procurement, implementation, and future enhancements, according to the *Law Enforcement Tech Guide*. It articulates each of the deliverables, the procedures and resources needed to produce them, and the quality measures they must meet to be accepted. This document can grow and change during the project's lifecycle.

The project plan is the roadmap guiding continued project planning, procurement, implementation, and management. It contains the specifics of how to get the job done. It is a disciplined effort to produce decisions and actions. The resulting plan will catalog the decisions about what to do, and when, why, and how to do it. A thorough project plan also assists in managing user expectations by detailing exactly what will be accomplished, how and when, and by whom.

One of the problems with project management arises when there isn't dedicated staff or staff time to devote to the project. The project leader has to be committed and have the authority to get things done. A project manager is the "jack of all trades," with myriad responsibilities.

"Is there a way to develop a Project Manager 101 course that you have to take when getting grant dollars?"

> *"It's very challenging when staff have to fit the project into their regular duties. There's a lack of clerical and administrative staff to assist."*

> *"The project manager needs to manage the executive committee, manage the political issues, manage the technical group, the user group, the vendor relations, lead the needs analysis, orchestrate the implementation, and manage the training, all the while dealing with legal and financial issues."*

In a multi-agency project, a project manager who is biased is a problem. The project manager should be agnostic, unbiased, not associated with a vendor, and, in a multidisciplinary project, cannot be aligned with one group. In multi-agency projects, there are complicated procurement and approval processes. Establish realistic timelines, taking into consideration bureaucratic approvals and the procurement process.

> *"Our project involves distributing grant funds for radio systems to 24 other agencies, all who have to go through a process of acceptance and approval. The bureaucracy makes for a very cumbersome process."*

It is important to develop a clear project definition, to determine how the project will fit into the overall work or with other projects, and to clarify the roles of participants. There should be a clear consensus as to what is to be accomplished including the vision, agreements, direction, focus, and project definition. Any lack of political support or "champions" is an issue.

"*If the County Council doesn't believe in it, it's not going to happen."*

"I don't think we in public safety, local government, and communications have done a good job of defining what the interoperability problem is and, therefore, it's not a compelling issue for our politicians. The examples we use like 9/11 or Katrina are powerful examples, but they are not illustrative of how often we need to be interoperable. There absolutely is a need for interoperable communications during catastrophic events. There is also a need for interoperability during everyday communications. Every day, thousands of times a day, all across the country, we dispatch fire, police, and emergency medical services to the same emergency incidents. They're going on the same calls and they often cannot talk to each other. We need to articulate that to our politicians."

One of the first aspects of project planning and management involves determining the scope of work including what will be contracted out and what will be done in-house. Avoiding scope creep—staying within the pre-established scope of a project—is difficult, as is staying within the budget. The scope of work should include complete lifecycle issues, including management, design, marketing, implementation, and post-project plans such as training, follow on, maintenance, and upgrades.

The planning and development process of the project should include a clear understanding by the technical staff of the operational environment, and always remembering the bottom line: The person in the field who uses the equipment.

"You need end-user involvement to understand needs from the beginning. We put IT in the patrol cars so they would get it."

"Is there buy-in at the end of the day? Did what we accomplish matter to the user? Is the system used?"

"Remember who the system is designed for—the end user on the street and in the Com Center. The cop who wants the radio on the shoulder versus the fire fighter who wants it on the hip are important issues to resolve."

There was consensus from both focus groups on the importance of clarity. Clearly define every aspect of the project. A recommendation echoed by every focus group for every aspect of an interoperability project: Get it in writing, including charters, contracts, and vendor expectations. Clearly define budget and ongoing costs. Clearly define the total cost of ownership.

There is often a lack of long-term planning and resource allocation for upgrades and maintenance built into projects. Political officials don't always have a clear understanding or clear expectations regarding the life expectancy of the deliverable. Again, clearly define expectations and requirements in writing.

"Our project requirement document took a year to write, but clearly documented every aspect of our project."

Budget for or hire a dedicated project manager/team. Get the best people for the project team, including all the necessary groups and/or disciplines in the plan: Users, technical, legal, and procurement people. Clearly document roles and responsibilities. The project management team should include at least two people who are aware of all elements of the project; this redundancy lessens risk. Include a conflict resolution plan. Include a change order process in the contract.

According to the *Law Enforcement Tech Guide*, a procedure for managing change throughout the life of the project is a critical factor in successful project planning and implementation. Things change. Scope will change. Timelines will be altered. Budgets will shift. But there must be a formal procedure for each alteration to any aspect to the project. This will ensure not only that the change is well researched and documented, but also that there are proper methods for approval and that all project participants are notified about the change and its impact on other parts of the project.

Clearly define the transition of ownership and when that occurs. Define future responsibilities and costs to both the vendor and end users regarding maintenance at the end of the project. Include a defined process to upgrade the system, including training on upgrades. Develop a clear operational, training, and re-training plan for users. Plan for different skills levels that may be required to run different and/or upgraded systems. Develop the means to sustain the initiative, including operational, technical, and training groups who report to an executive steering committee.

Based on the discussions over the two days, the focus groups identified the following problems, lessons learned/best practices, recommendations, and resources required that should be considered in project planning and management:

Problems
❑ Lack of clear vision (goal, scope, time, and cost defined).
❑ Lack of leadership (political, agency consensus, project champion, turnover).
❑ Lack of skills (project management and staff).
❑ Lack of funding (initial, sustainable, committed upfront; understanding of total cost of operation; funding timing, design, maintenance, implementation, training, replacement, upgrades).
Lessons Learned
❑ Dedicated project manager (staff, resources, authority, stakeholder support).
❑ Need for clear definitions (expectations in writing, limitations, scope).
❑ Use available resources (grant guidance, SAFECOM, other agencies and users, vendors).
❑ Follow the vision, short-, medium-, and long-term (timelines, scope, plan). Don't get fascinated with a vendor.

Recommendations
❑ Clearly defined project (budget, team, funding for project management and support team, vendor relations, expectations in writing, conflict resolution, change order process).
❑ Manage vendors (contracts/resources).
❑ User involvement (feedback, input, training, and testing).
❑ Detailed/methodical fiscal management from beginning to end.
Resources
❑ Staffing/leadership.
❑ Sustainability (cost maintenance, user groups, upgrades, training, consensus, governance, management process, reporting, financial support, closeout, timing).
❑ Supplementary support services (legal, technical, consulting, administration).

Group D: Procurement, Contracting, and Vendor Management

■ Reporting Out: Tom Sorley, Manager, Orange County Public Safety Communications, Florida

Once needs are defined and the initial project plan is created, including design and functional specifications, the process of actual procurement or system acquisition begins. Procurement is governed by many rules that must be adhered to as a condition of being a governmental agency. Those rules generally dictate how the procurement must be conducted, although there is normally a good deal of agency discretion with regard to creating the requirements and evaluating the vendors' proposals.

Interoperability projects often require lots of detailed design and engineering, according to the COPS *Interoperability Tech Guide*, and multi-agency efforts add layers of complexity through a complex interaction of needs, financial abilities, and procurement rules. The Guide notes the vital importance of a process to define, design, specify, and buy the system. A well-defined process controls the project and the vendor, and breaks down the project into manageable, well-understood pieces.

For most agencies, the contract negotiation process is the most difficult and foreign project task. It's particularly foreboding because the agency is at an immediate disadvantage—the project manager is probably not an attorney and may never have negotiated a contract, while the vendor will assign one or more attorneys who negotiate contracts for a living. The *Interoperability Tech Guide* describes the basic process and elements of a well-crafted vendor contract, details the actual documents that should be included, and provides advice for securing the most advantageous language. The *Interoperability Tech Guide* strongly recommends that an agency get help from an attorney who is an expert in contract negotiations of this type.

As the two groups discussed challenges, there was widespread agreement that this is one of the most difficult tasks of developing an interoperability project. Defining the appropriate procurement strategy is extremely difficult. Preparing contracts is complex and difficult, and most agencies lack training and expertise in preparing contracts.

The process of procurement commonly begins with a Request for Proposals (RFP), Request for Information (RFI), or Request for Qualifications (RFQ). Writing a good RFP requires understanding and defining the problem, then translating it into a vision, and ultimately into requirements. Requirements should be defined in terms of performance and functionality and based on the users' needs.

"If you haven't written it down, you're not going to get it!"

> *"In some cases, someone writes a grant and there is no carefully defined needs analysis done beforehand."*

When creating an RFP, detail is important, but be careful about what type of detail. When making a grant request, be generic about equipment requests. Don't include a request for a specific vendor or specific vendor equipment, which would indicate the lack of competitive procurement to the granting agency.

One participant described a situation in which an agency required that the vendor cover so many unknowns that the price became prohibitive.

> *"During the requirements development of our project, the staff was inexperienced and wanted to make sure that every piece of the project was covered by grant funds. They added so many requirements to the project that RFP responses came in at least double the price of what they should have been. Don't add unknowns or risky guarantees by the vendor that may be big ticket items and result in a higher bid response than necessary."*

Participants said that agencies need experienced help in writing RFPs and contracts, and an ability to share specifics to help agencies that are just starting.

> *"There should be a way to share information and actual sample contracts or RFPs that smart, experienced agencies have developed with other smaller agencies that could use the help. Is there a way to share the 'gotchas' regarding contract or RFP language? How can we leverage each other's experiences?"*

Political realities: Projects with serious flaws may get a pass if they have a political priority. Be proactive in a political environment to avoid some of the landmines. Be aware of your champions. Keep the politicians informed.

Performance measurements are generally set by elected officials, which means they can be amorphous and difficult to measure.

An immense number of details need to go into a Statement of Work (SOW). A SOW is the roadmap for projects and must include comprehensive descriptions of the roles and responsibilities of the vendor *and* the agency. Include information on how the agency will evaluate bids because it allows vendors to better understand how the agency will be evaluating their responses, and it compels agencies to plan ahead for how the evaluation will occur.

Following acceptance of a proposal, the difficult task of creating the contract and dealing with the vendors begins. Participants noted these caveats and suggestions:

> *"Figure out what your 'hammer' is—whether it be holdbacks or liquidated damages—and put it in your contract."*

> *"You're not buying products, you're buying people."*

> *"Remember—the person across the table is not an adversary, but they* **are** *there to make money for their company. You have to make your business decisions based on due diligence and legal analysis and what's best for your agency."*

> *"Your department may have 65 people on a project, but the vendor has 65,000."*

> *"If you have two vendors with a large differential in price, check out a third vendor to learn if something is missing."*

References are important. Several participants asked how to determine if the vendor's pricing is fair and reasonable. One way to handle this is by conducting peer references.

Call former vendor clients and ask what the quoted price was and what was the final cost of the project.

> *"In Southern California, one city was quoted a price of $500,000 for a particular project while three other cities located in that county were quoted $1.5 million each in response to the same project and the same RFP. It was based on what price they thought the market would bear in cities closer to Los Angeles."*

There are differing costs for the same products across the country. New York State runs an Office of General Services site at www.ogs.state.ny.us that provides the costs of a tremendous number of goods and services. New Mexico's site www.sde.state.nm.us has information on State contracts and bid prices.

> *"We included a requirement in our contract that we could buy additional equipment for the next two years at the same price as we paid on acceptance occurred."*

Other suggestions included: Match timelines to milestones to payment schedules. Timelines should track the agency's responsibilities as well as the vendor's. Watch the contract language. Typical language might say, for example, that the vendor will respond to a problem within seven days, but it should say correct the problem within seven days. Another issue that might be included in the contract is deciding if the agency, vendor, or another contractor will be the integrator of the new technology. The contract needs to include information on warranties, maintenance, spare parts, and an acceptance test plan. With newer technology that is more difficult to implement or understand, include the costs of staff training and software upgrades on a regular basis.

Regarding the issue of sole sourcing and competitive procurement, it was noted that if an agency does choose to use a sole source, justification is necessary and the agency should get approval for sole sourcing from its grant advisor.

> *"A lot of our technology would require the original vendor to build on or upgrade the earlier technology or infrastructure. You could include the requirement in your contract to integrate the technology seamlessly with your current system. You'll likely get one response but then you've satisfied your requirement for competitive procurement."*

On the issue of bid protests, a participant said: "*We separated our teams and didn't share any information between them. We had a technical evaluation team and a cost evaluation team and when we brought in the losing vendor to review the scoring sheets, we avoided conflict."*

Defining acceptance terms is important. Define these details up front. Acceptance begins the warranty period.

> *"Your vendor will say it's as soon as you make productive use of it, basically as soon as people start using it, when it should be defined as 'the passage of functional, performance, and reliability testing.'"*

"I've always written in my documents that beneficial use does not constitute acceptance."

Regarding the role of consultants and engineers, make sure the role of the consultant is carefully crafted and controlled. Create timeframes of the consultant's responsibilities and make performance in the next phase of the project contingent on completion as the project unfolds. Evaluate whether or not you need a consultant and carefully define their role.

"We have a technical consultant working for us, an engineer who can confirm that, yes, this is a reasonable solution for you, or this will or will not work."

Beware of red tape with the vendor and the agency. In-house attorneys and purchasing departments can make the process cumbersome. To avoid some of these issues, clearly define the scope of work and make sure the aspect controlled in-house is in order.

"In my project, it was as critical to have a strong clerical staff to support the project manager. We had nine counties for which we had to manage requisition forms, meeting minutes, and inventory."

Based on the discussions of the two breakout groups, the following problems, lessons learned/best practices, recommendations, and resources required should be considered in procurement, contracting, and vendor management:

Problems
❑ Creating a procurement strategy is complex and difficult.
❑ Defining the appropriate procurement strategy is extremely difficult.
❑ Contracts are vital tools in which agencies lack training and preparation expertise.
❑ Contract development is a foreign process that carries extraordinary importance.
Lessons Learned
❑ Consultants are useful with proper selection and careful oversight.
❑ The most successful projects start with thoroughly defined requirements.
❑ Acceptance test plans are vital and should be developed prior to contract signing.
❑ A statement of work serves as the roadmap for projects and must include comprehensive descriptions of the roles and responsibilities of the vendor *and* the agency.
Recommendations
❑ When using a consultant, be sure to fully control their role and consider the use of holdbacks (for the consultant).
❑ Define your requirements as thoroughly as possible based upon an actual needs analysis.
❑ Define acceptance as the completion of function, reliability, and performance tests.
❑ If you don't write it down, you won't receive it!

Resources

- The COPS *Law Enforcement Tech Guide* and *Interoperability Tech Guide* sections on procurement and contracting.
- Public websites, including www.search.org, www.npstc.org, www.justnet.org, www.apcointl.org, www.safecomprogram.gov.
- The RFP and contracts obtained from vendor reference sites.
- Information obtained from your agency's purchasing office and legal counsel.

Group E: Implementation, Operations, and Performance Measurement

■ Reporting Out: Olivia Gasca, Systems Manager, Sacramento Regional Radio Communications System, California

System implementation is the process of installing, integrating, testing, and accepting procured technology, says the COPS *Interoperability Tech Guide*. Training users and support personnel is key to integrating technology into agency response procedures. As with all stages of a technology project of any kind, a formal implementation process provides all project participants, including vendors, a clear blueprint. Without a plan, there is a risk of failure or problems through miscommunications and divergent expectations.

As the participants discussed challenges, there was widespread agreement that, "*Everything that goes wrong at this point began three steps back."* The advice repeated in both focus groups—get help up front. Prior planning pays off. Writing an implementation plan is worth the time it takes to develop. A number of participants said they referred to them all the time. One of the biggest problems with implementation circles back to the beginning of the project: Requirements are not properly defined, creating a conflict between what the agency thought they were getting and what was delivered. Lack of stakeholder involvement in the implementation process creates user rejection of the new system. Define your business requirements and processes. User involvement is critical when developing programming templates and training on issues, such as where the talk groups are located.

> "*We did a 70-page-long product requirements document that went through technical issues and how the project was going to happen, including examples."*

> "*When an end user doesn't know how to use a piece of equipment, it's because no one sat down and said, 'How do you do this and how would you like to be able to use it?'"*

> *"We went two ways. We did an RFP asking the vendors to come back with all possible solutions, and, in another case, we developed a specific bid. The vendor came to talk with the users to find out what they wanted and they ended up being the successful bidder on the project. As a result of that, we now require vendors to come out and spend the day with the users to ensure they know what we need. The RFP effort was very time-consuming with lots of revisions required."*

Use the "fit and gap" process to minimize implementation surprises and issues.

> *"In Seattle, we developed a 'fit and gap' process. Two vendors came on site in response to an RFP, and spent three weeks doing multiple iterations of every requirement to demonstrate that their software would meet the agency's needs. Vendors could propose enhancements or how the agency could change its business practice to work better. Basically we opened the hood and learned all the details you normally don't learn until you're into the implementation."*

Systems implementation signals the beginning of a new phase of building the new system and planning for systems maintenance, upgrade, enhancement, and replacement. Acceptance test plans are vital and are recommended to be included prior to signing the contract. The COPS *Interoperability Tech Guide* notes that acceptance testing is the process that an agency uses to verify that the delivered and installed product meets requirements specified in the procurement documents and contract, and is ready for use. From the agency's point of view, this usually means that every user-oriented function should be thoroughly exercised and that any purchased equipment should be free from defect. Functional tests ensure that the equipment works as proposed. Reliability testing usually requires some sort of simulation, which could be a test of radio components and how they perform with the loss of backbone connections between sites, for example. Performance testing measures how well the technology meets the operational requirements. Final performance testing requires that all subsystems be installed, configured, optimized, and integrated. Testing through exercises stress tests the new system. For radio systems, coverage testing is also needed. Radio coverage testing involves field measurements of signal strength that project coverage using the measurements and probability statistics.

Training, training, training. It is critically important to train and exercise interoperable communications including equipment, procedures, and command and control.

> *"You got to train more than once and make them use [the system] constantly. You get initial training, then three years goes by and you haven't used the equipment, and you're wondering 'how did they tell us to use this?'"*

> *"We test our system twice a week. Unless you do, when it's hitting the fan, they will go back to the way they've always done it unless it's second nature."*

> *"You can have the best system in the world but it does no good unless your personnel are comfortable using it."*

> *"Join a users' group. Motorola Trunked Users Group is another forum for discussing issues between users. M/A-COM hosts a similar listserv."*

Require the vendor to provide as-built documentation in the scope of work. Provide a clear and concise defined implementation plan that defines the completion of tasks and what denotes completion, how to negotiate and solve problems, and the payment schedule. Define the maintenance agreement that follows when the original one-, two, or five-year contract ends. Identify the total cost of ownership, and let the politicians know that there will be an ongoing cost of ownership. Post-project plans should include a method for continuous audit process. It could address the process for bringing in new agencies and whether the system the agency bought is able to add another 25, 50, or 100 percent capacity, and if that was defined up front.

> "*Every year right before hurricane season we do a top-to-bottom audit of our agency where we define operational readiness, evaluate our technology, make sure it's meeting our needs, look for shortfalls and fill them. So on a yearly basis we're updating our technology and our capabilities so we stay current."*

Based on the discussions of the two breakout groups, the following problems, lessons learned/best practices, recommendations, and resources required should be considered in implementation, operations, and performance measurement:

Problems
❑ Requirements are not properly defined, creating a conflict between what the agency thought they were getting and what was delivered.
❑ Lack of stakeholder involvement in the implementation process creates user rejection of the new system.
❑ Lack of future planning of resources, and funding for the ongoing system—no money or plan for ongoing maintenance.
❑ Implementation plan with schedule was not included in deliverables.
Lessons Learned
❑ Set up collaborative teams by function (officers, dispatchers, records staff, IT).
❑ Use the "fit and gap" process to minimize implementation surprises and issues.
❑ Identify ownership of project by a person with command authority.
❑ Allow flexibility in schedule.
Recommendations
❑ Document requirements in detail versus asking for solutions.
❑ Identify the total cost of ownership with a living document.
❑ Create user groups to continue to document business practices and update procedures as needed.
❑ Set up site visits to similar infrastructures.
Resources
❑ Staff time to define requirements by discipline.
❑ Staff time to identify business processes and develop the specifications to measure during performance testing.
❑ Funding and staff resources to keep the system running after implementation is completed.
❑ Project management is provided support from the highest level.

Closing Remarks

Mike Dame, Assistant Director for Grant Administration, Office of Community Oriented Policing Services, U.S. Department of Justice

Mike Dame, Assistant Director for Grant Administration, COPS, thanked his Federal partners and co-hosts, SEARCH, and participants at the second COPS Interoperability Summit. He also particularly noted the valuable contributions of the summit presenters, who set the tone for this productive conference. The contribution of the summit participants will provide valuable and practical lessons and recommendations to others initiating interoperable communications projects.

Mr. Dame adjourned the meeting.

Participant Roster

2006 National Interoperability Summit
Austin, Texas, May 24–25, 2006

Louis H. Amell
Communications Chief
Las Vegas Fire Communication Center
500 North Casino Center Drive
Las Vegas, NV 89109
(702) 229-0237
Fax: (702) 868-9001
lamell@lasvegasnevada.gov

Adrian Barton
Policy Director
Homeland Security & Public Safety
City of Los Angeles
200 North Spring Street, Room 303
Los Angeles, CA 90012
(213) 978-0600
adrian.barton@lacity.org

Sgt. Todd A. Beam
Lincoln Police Department
575 South 10th Street
Lincoln, NE 68508
(402) 441-6012
Fax: (402) 441-7010
contact692@earthlink.net

Chief Michael R. Bladel
Davenport Police Department
420 North Harrison Street
Davenport, IA 52801
(563) 326-7778
Fax: (563) 888-2207
tbr@ci.davenport.ia.us

Peter Borges
Grant Program Specialist
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 616-9420
peter.borges@usdoj.gov

Charles Brennan
Director
Office of Public Safety Radio Systems
Commonwealth of Pennsylvania
2605 Interstate Drive
Harrisburg, PA 17110
(717) 772-8006
chabrennan@state.pa.us

Charles Brotherton
Wireless Communications Manager
Travis County
P.O. Box 1748
Austin, TX 78767
(512) 854-4895
Fax: (512) 854-4786
charles.brotherton@co.travis.tx.us

Jay Brummett
Chief Technology Officer
Information Technology
Ogden City Corporation
2549 Washington Blvd., Suite 410
Ogden, UT 84401
(801) 629-8722
Fax: (801) 629-8717
jaybrummett@ci.ogden.ut.us

Ed Brundage
Technical Systems Manager
Kansas City Police Department
5304 Municipal Avenue
Kansas City, MO 64120
(816) 482-8510
Fax: (816) 482-8559
ebrundage@kcpd.org

William Carter
Director of Wireless Projects
Office of Emergency Management & Communications
City of Chicago
1411 W. Madison Street
Chicago, IL 60607
(312) 746-9252
Fax: (312) 746-9202
bcarter@cityofchicago.org

Stephen T. Cassano
National Association of Regional Councils
SAFECOM Advisory Committee
1109 East Middle Turnpike
Manchester, CT 06040
(860) 646-6882
Fax: (860) 647-3200
stevec1109@aol.com

Rickerd Ching
Electronics Technician
Federal Bureau of Investigation
P.O. Box 50164
Honolulu, HI 96850
(808) 479-4113
rching1@leo.gov

Sgt. Patrick N. Cobb
Office of Emergency Management
Williamson County
City of Austin
625 E. 10th Street, 9th Floor
Austin, TX 78701
(512) 974-2424
ada.turner@ci.austin.tx.us

Dr. Debra Cohen
Senior Social Science Analyst
COPS Office
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 514-8246
Fax: (215) 891-9212
debra.cohen2@usdoj.gov

Denis Collins
Systems Analyst
BAE Systems, Inc
U.S. Department of Justice–25 Cities Program
12801 Fair Lakes Parkway, Suite 100
Fairfax, VA 22033
(516) 742-0419
Fax: (516) 248-8990
deniscollins@optonline.net

Mark S. Conrey
911 Director
Communications
Douglas County
8425 Girard
Omaha, NE 68122
(402) 444-5800
Fax: (402) 444-3407
mconrey@ci.omaha.ne.us

Jesse W. Cooper
Communications Manager
800 MHz Project
Communications Bureau
Phoenix Police Department
100 East Elwood Street
Phoenix, AZ 85040
(602) 534-0315
Fax: (602) 534-1454
jesse.cooper@phoenix.gov

Paul R. Corts
Assistant Attorney General for Administration
U.S. Department of Justice
Justice Management Division
950 Pennsylvania Ave., NW, Room 1111
Washington, DC 20530
(202) 514-3101
Fax: (202) 616-6695
paul.r.corts@usdoj.gov

Capt. Thorvald O. Dahle
Support Services
Fargo Police Department
222 4th Street North
Fargo, ND 58102
(701) 241-1414
Fax: (701) 241-1407
tdahle@cityoffargo.com

Michael E. Dame
Assistant Director for Grants Administration
COPS Office
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 305-7541
Fax: (202) 514-9407
michael.dame2@usdoj.gov

Albert de Plazaola
SAFECOM/Touchstone
1920 N. Street, Sixth Floor
Washington, DC 20036
(202) 447-7776
albert_deplazaola@sra.com

Patti B. DeFazio
Information Technology Manager
Seattle Police Department
610 Fifth Avenue
Seattle, WA 98124-4962
(206) 684-8033
Fax: (206) 684-5109
patti.defazio@seattle.gov

Maj. Marc Deluca
Community Services Bureau
Charlotte-Mecklenburg Police Department
601 East Trade Street
Charlotte, NC 28202-2940
(704) 432-0377
Fax: (704) 336-5712
mdeluca@cmpd.org

Laura DeOrio
Events Manager
SEARCH
7311 Greenhaven Drive, Suite 145
Sacramento, CA 95831
(916) 392-2550 ext. 252
Fax: (916) 392-8440
laura.deorio@search.org

Capt. Marlyn W. Dietz
Technology/Communications Division
Wilmington Police Department
300 North Walnut Street
Wilmington, DE 19801
(302) 576-3186
Fax: (302) 576-3686
marlyn.dietz@cj.state.de.us

Kenneth W. Doughty
Electronic Technician
U.S. Department of Justice
Federal Bureau of Investigation
2500 East T.C. Jester Blvd.
Houston, TX 77008
(713) 693-5000 ext. 5156
kenneth.doughty@ic.fbi.gov

Michael D. Duffy
Director, E-Government Services
U.S. Department of Justice
Justice Management Division
950 Pennsylvania Ave., NW, Room 1310A
Washington, DC 20530-0001
(202) 514-0507
Fax: (202) 514-1225
michael.duffy@usdoj.gov

Chris Essid
Commonwealth Interoperability Coordinator, Office of Commonwealth Preparedness
Governor's Office
202 North 9th Street, Room 930
Richmond, VA 23218
(804) 225-3800
Fax: (804) 371-7992
chris.essid@governor.virginia.gov

Sgt. Steven Fisher
Special Operations
Orangetown Police Department
1 Police Plaza
Orangeburg, NY 10962
(845) 359-3700 ext. 550
sfisher@orangetown.com

David W. Folkers
Information Systems Administrator
Information Technology
Houston Emergency Center
5320 North Shepherd Drive
Houston, TX 77009
(713) 884-4564
Fax: (713) 884-4580
david.folkers@cityofhouston.net

Debbie H. Fox
Deputy Director
MetroSafe
410 South 5th Street, #200
Louisville, KY 40202
(502) 817-5196
Fax: (502) 574-2693
debbie.fox@louisvilleky.org

Anthony Frater
Deputy Director, OIC
U.S. Department of Homeland Security
Washington, DC 20528
(202) 254-6635
anthony.frater@dhs.gov

Linda L. Fuchs
Department of Management Services
4030 Esplanade Way, Suite 125
Tallahassee, FL 32399
(850) 488-8036
linda.fuchs@dms.myflorida.com

Olivia A. Gasca
Systems Manager
Sacramento Regional Radio Communications System
Office of Communications & Information Technology
Sacramento County
799 G Street
Sacramento, CA 95814
(916) 874-3169
Fax: (916) 874-5130
gascao@saccounty.net

Capt. Joseph L. Gaudett Jr.
Communications Division
Bridgeport Police Department
300 Congress Street
Bridgeport, CT 06604-4060
(203) 576-7739
Fax: (203) 576-7717
gaudej0@ci.bridgeport.ct.us

Kimberly Glenn
Manager
Information Services
San Diego Police Department
1401 Broadway Avenue, MS 739
San Diego, CA 92101
(619) 531-2415
Fax: (619) 531-2408
kglenn@pd.sandiego.gov

Randy Goddard
Chief Communications Engineer
Iowa Homeland Security
Iowa Department of Defense
Joint Forces Headquarters
6100 NW 78th Avenue
Johnston, IA 50131
(515) 323-4238
Fax: (515) 323-4208
randy.goddard@hlsem.state.ia.us

Lt. Raymond D. Goeckel
Grants Coordinator
Shreveport Police Department
1234 Texas Avenue
Shreveport, LA 71101
(318) 673-7211
Fax: (318) 673-7233
ray.goeckel@ci.shreveport.la.us

Sgt. Thomas M. Golder
Communications Bureau
Nassau County Police Department
1490 Franklin Avenue
Mineola, NY 11501
(516) 573-7623
Fax: (516) 573-7007
tgolder@pdcn.org

Daniel Gorton
System Manager
Pikes Peak Regional Communications Network
404 West Fontanero St., Bldg. 234
Colorado Springs, CO 80907
(719) 385-7301
Fax: (719) 385-7395
dgorton@springsgov.com

Mark Graham
Project Manager
COPS Metro Simulcast
2005 Valhalla Street
Eugene, OR 97401
(541) 729-7841
mjgraham2@comcast.net

Tommy Green
New Orleans Police Department
715 South Broad Street
New Orleans, LA 70119
(504) 628-3624
tcgreen@cityofno.com

James T. Griffin
Team Leader
Interoperable Communications Technology Program
COPS Office
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 305-1264
james.griffin2@usdoj.gov

Arletha C. Guerrero
Business Systems Analyst
Communications and Technology Management
Austin Police Department
1006 Smith Road
Austin, TX 78721
(512) 974-3262
Fax: (512) 974-3269
arletha.guerrero@ci.austin.tx

John D. Gundersen
Assistant Communications Manager
Communications Division
Hennepin County Sheriff's Office
9300 Naper Street
Golden Valley, MN 55427
(612) 596-1921
john.gundersen@co.hennepin.ms.us

Robert M. Gurss
Director of Legal & Government Affairs
APCO International
1725 DeSales Street, NW, Suite 808
Washington, DC 20036
(202) 833-3800
gurssr@apco911.org

Carl Guse
Frequency Specialist
Communications
Wisconsin State Police
P.O Box 7912
Madison, WI 53707-7912
(608) 266-2497
Fax: (608) 267-4495
carl.guse@dot.state.wi.us

Jennifer Hagen
Police Communications Supervisor
Communications/800MHz
Phoenix Police Department
100 East Elwood
Phoenix, AZ 85040
(602) 534-9924
Fax: (602) 534-1454
jennifer.hagen@phoenix.gov

E. Douglas Hamilton
Director
Louisville & Jefferson County Metropolitan Government
EMA/MetroSafe
410 South 5th Street, #200
Louisville, KY 40202
(502) 574-3900
Fax: (502) 574-2693
doug.hamilton@louisvilleky.gov

George Hanzawa
Federal Bureau of Investigation
P.O. Box 50164
Honolulu, HI 96850
(808) 840-4777
ghanzawa@leo.gov

Kelly J. Harris
Deputy Executive Director
Programs Division
SEARCH
7311 Greenhaven Drive, Suite 145
Sacramento, CA 95831
(916) 392-2550 ext. 241
Fax: (916) 392-8440
kelly.harris@search.org

Edward Harris
Deputy Director
Technical Services Division
Austin Police Department
P.O. Box 689001
Austin, TX 78768
(512) 974-5035
ed.harris@ci.austin.tx.us

James P. Hassett
Manager, Radio Repair Operations
Office of Information Technology
New York Police Department
1 Police Plaza, Room 900
New York, NY 10038
(646) 610-5545
Fax: (646) 610-8993
jhassett@gw.nypd.org

Dan M. Hawkins
Director
Public Safety Programs
SEARCH
1821 Choteau Street
Helena, MT 59601
(406) 443-0170
dan.hawkins@search.org

Joseph Heaps
CommTech Portfolio Manager
National Institute of Justice
Office of Justice Programs
U.S. Department of Justice
801 Pennsylvania Ave., NW, Suite 1002
Washington, DC 20004
(202) 841-2563
Fax: (202) 307-9907
joseph.heaps@usdoj.gov

Rob Heun
Deputy Chief
Anchorage Police Department
4501 South Bragaw
Anchorage, AK 99507
(907) 786-8553
Fax: (907) 786-8638
rheun@ci.anchorage.ak.us

Lt. Thomas E. Higgins
Fire Lieutenant
Bangor Fire Department
289 Main Street
Bangor, ME 04401
(207) 852-5142
Fax: (207) 942-8213
thomas.higgins@bgrme.org

Lt. Lyn Hodges
Criminal Investigations
Las Cruces Police Department
PO Box 20000
Las Cruces, NM 88004
(505) 528-4184
lhodges@las.cruces.org

Deputy Insp. Edmund J. Horace
Communications Bureau
Nassau County Police Department
1490 Franklin Avenue
Mineola, NY 11550
(516) 573-7600
Fax: (516) 573-7007
ehorace@pdcn.org

Frederick E. Hughes
Advisory Committee
SAFECOM
3321 Ottawa Road
Richmond, VA 23225
(804) 647-5081
fehsan@comcast.net

Barbara L. Ireland
Director of Communications
New Orleans EMS
100 City Park Avenue
New Orleans, LA 70119
(504) 671-3936
bireland@cityofno.com

Nicola Jansen
Communications Project Manager
Ada County Sheriff's Office
7200 Barrister Drive
Boise, ID 83712
(208) 577-3620
Fax: (208) 577-3319
njansen@adaweb.net

Cmdr. Ellis Johnson
Bureau of Communications
Department of Public Safety
City of Cleveland
2001 Payne Avenue
Cleveland, OH 44114
(216) 623-5814
Fax: (216) 623-5729
ejohnson@city.cleveland.oh.us

John L. Jones
Director
Research and Development
City of Des Moines
25 East 1st Street
Des Moines, IA 50309
(515) 283-4880
Fax: (515) 237-1648
jljones@dmgov.org

Craig Jorgensen
Project Director/Co-Chair
Project 25-34
1398 Michigan Avenue
Salt Lake City, UT 84105-1607
(801) 583-1099
jorgensen@sisna.com

Teodros Kavaleri
Telecommunications Manager – Radio Systems
Office of Unified Communications
310 McMillan Drive, NW, 2nd Floor
Washington, DC 20001
(202) 673-3139
Fax: (202) 671-4758
teddy.kavaleri@dc.gov

Fred Keithley
Director of Community Services
North Central Texas Council of Governments
616 Six Flags Drive
Arlington, TX 76011
(817) 695-9171
Fax: (817) 608-2372
fkeithley@nctcog.org

Peter Kim
NIJ/CommTech Program
810 7th Street, NW
Washington, DC 20531
(202) 305-8774
peter.kim@usdoj.gov

Lt. Gary L. Kirby
Office of the Chief
San Jose Police Department
201 W. Mission Street
San Jose, CA 95110
(408) 277-5250
Fax: (408) 277-3198
gary.kirby@sanjoseca.gov

Myron D. Kissinger
Supervisor
Electronic Engineering Bureau
Technology Services
City and County of Denver
1930 35th Street
Denver, CO 80126
(303) 295-4389
Fax: (303) 295-4386
kissingerm@ci.denver.co.us

Lt. Adam M. Kisthardt
Pennsylvania State Police
2605 Interstate Drive, Suite 140
Harrisburg, PA 17011
(717) 772-8805
akisthardt@state.pa.us

Curt Knight
Executive Director
Public Safety Communications
Arizona Department of Public Safety
P.O. Box 6638, Mail Drop 3450
Phoenix, AZ 85005-6638
(602) 223-2257
Fax: (602) 271-7363
cknight@azdps.gov

Benjamin R. Krauss
Public Safety Technology Specialist
SEARCH
8026 122nd Avenue, NE
Kirkland, WA 98033
(425) 522-4480
Fax: (425) 522-4480
ben@search.org

Sgt. Tom Labombarda
Special Projects
Administration
Aventura Police Department
19200 West Country Club Drive
Aventura, FL 33180
(305) 466-8989 ext. 8313
Fax: (305) 466-8990
labombardat@aventurapolice.com

Michael Latessa
Interim Director
Office of Unified Communications
310 McMillan Drive, NW, 2nd Floor
Washington, DC 20001
(202) 671-3349
Fax: (202) 671-4758
michael.latessa@dc.gov

Thomas M. Levy
Assistant Director Fire Commander
New Orleans Fire Department
721 Pauline Street
New Orleans, LA 70117
(504) 671-3940
Fax: (504) 671-3914
tlevy@bellsouth.net

Bob Lincoln
Manager, Information Division
Spokane Police Department
1100 West Mallon Avenue
Spokane, WA 99260
(509) 835-4521
blincoln@spokanepolice.org

Sgt. Michael Macha
Mayor's Office of Public Safety and Homeland Security
Houston Police Department
900 Bagby, 2nd Floor
Houston, TX 77002
(713) 437-6981
Fax: (713) 437-6530
michael.macha@cityofhouston.net

Gary Marcus
Federal Bureau of Investigation
1 Justice Way
Dallas, TX 75220
(972) 559-5424
dgmarcus@hotmail.com

John S. Martin
Master Sergeant
Technology Unit
Wilmington Police Department
300 North Walnut Street
Wilmington, DE 19801
(302) 576-3683
Fax: (302) 571-4446
john.martin@cj.state.de.us

Wanda McCarley
President
APCO International
351 North Williamson Blvd.
Daytona Beach, FL 32114
(817) 988-2408
Fax: (817) 882-0500
wanda@tc911.org

Harlin R. McEwen
Chairman
Communications Committee
International Association of Chiefs of Police
422 Winthrop Drive
Ithaca, NY 14850-1739
(607) 257-1522
Fax: (607) 257-8187
chiefhrm@pubsaf.com

Pam Montanari
Radio Systems Manager
Emergency Communications
Pinellas County
12490 Ulmerton Road
Largo, FL 33774
(727) 582-2509
Fax: (727) 582-2555
pmontana@pinellascounty.org

Chief Mike Morgan
Assistant Fire Chief
Los Angeles County Fire Department
1650 West 162nd Street
Gardena, CA 90247-3734
(310) 217-8391
Fax: (310) 217-8393
mfmorgan@lacofd.org

Tim L. Morrow
System Supervisor
Memphis Police Department
79 South Flicker Street
Memphis, TN 38104
(901) 320-5330
Fax: (901) 452-6524
tim.morrow@memphistn.gov

Dr. Bill Munn
First Vice President
National Emergency Number Association
4350 North Fairfax Drive, Suite 750
Arlington, VA 22203
(817) 563-6122
dr911guy@aol.com

Michael Murphy
Homeland Security/Grants Manager
Office of the Chief of Police
Baton Rouge Police Department
704 Mayflower Street
Baton Rouge, LA 70802
(225) 389-5221
Fax: (225) 389-5589
mmurphy@brgov.com

Glen Nash
Senior Engineer
Department of General Services
State of California
601 Sequoia Pacific Blvd.
Sacramento, CA 95814
(916) 657-9454
Fax: (916) 657-9233
glen.nash@dgs.ca.gov

Chief Deborah K. Ness
Administration
Bismarck Police Department
700 South 9th Street
Bismarck, ND 58504
(701) 223-1212
Fax: (701) 221-7262
dness@state.nd.us

Claude M. Oden
Director
U.S. Department of Justice
Wireless Management Office
12801 Fair Lakes Parkway, Suite 100
Fairfax, VA 22033
(703) 322-1660
claude.m.oden@usdoj.gov

Doug Onhaizer
Communications Administrator
Communications and Information Technology
City of Virginia Beach
2405 Court House Drive
ComIT, Building 2
Virginia Beach, VA 23456-9027
(757) 563-1847
donhaize@vbgov.com

Sgt. Bill O'Reilly
Sergeant
Homeland Security Division
Chicago Police Department
3510 South Michigan, Unit 170
Chicago, IL 60653
(312) 745-5800
Fax: (312) 745-6868
william.oreilly@chicagopolice.org

Dereck Orr
Program Manager
OLES, NIST
U.S. Department of Commerce
13402 Staffordshire Place
Germantown, MD 20874
(301) 975-2296
dereck.orr@nist.gov

Capt. Todd G. Osmundson
Fargo Police Department
222 North 4th Street
Fargo, ND 58104
(701) 298-6996
Fax: (701) 297-7789
tgosmundson@ci.fargo.nd.us

Capt. Mark Patterson
Financial Office
Lynchburg Police Department
905 Court Street
Lynchburg, VA 24504
(434) 455-6052
Fax: (434) 847-1507
mark.patterson@lynchburgva.gov

Carl R. Peed
Director
COPS Office
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 616-2888
Fax: (202) 616-8658
carl.peed@usdoj.gov

Joe M. Peters
Director, Technology Assistance
Sheriff's Association of Texas
1601 South IH-35
Austin, TX 78741
(512) 445-5888
Fax: (512) 445-0228
joe@txsheriffs.org

Robert A. Phillips
Deputy Director for Operations
COPS Office
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 307-1480
Fax: (202) 616-2914
bob.phillips2@usdoj.gov

Robert Pletcher
Program Director
RF Unit
Texas Department of Public Safety
5805 North Lamar, MS 0259
Austin, TX 78773
(512) 424-5307
Fax: (512) 424-5320
robert.pletcher@txdps.state.tx.us

Norman Poe
Radio Systems Administrator
Communications
Orlando Police Department
100 South Hughey Avenue
Orlando, FL 32801
(321) 235-5314
Fax: (407) 249-4601
norm.poe@cityoforlando.net

John S. Powell
Senior Consultant Engineer
U.S. DOJ and U.S. DHS
790 Washington Street, Suite 909
Denver, CO 80203-3749
(510) 410-2858
jpowell@uclink.berkeley.edu

Steven H. Proctor
Executive Director
Utah Communications Agency Network
5360 South Ridge Village Drive
Salt Lake City, UT 84118
(801) 840-4201
Fax: (801) 840-4242
steve@ucan800.org

Jim Reutlinger
Public Safety Technology Specialist
SEARCH
7311 Greenhaven Drive, Suite 145
Sacramento, CA 95831
(916) 392-2550 ext. 310
Fax: (916) 392-8440
jim.reutlinger@search.org

Chief Thomas J. Roche
Town of Gates Police Department
1605 Buffalo Road
Rochester, NY 14624-1696
(585) 247-2262
Fax: (585) 247-8969
troche@townofgates.org

Jeffery Rodrigues
Deputy Director
Office of Emergency Management and Communications
City of Chicago
5621 South Nottingham Avenue
Chicago, IL 60607
(312) 746-6367
Fax: (312) 746-6456
jrodrigues@cityofchicago.org

William H. Romesburg
Law Enforcement Information Technology Specialist
SEARCH
41960 Butterfield Stage Road
Temecula, CA 92592
(951) 506-9851
Fax: (951) 695-4934
bill@cit-com.com

Donald E. Root Jr.
Assistant Manager
Wireless Services Division
San Diego County Sheriff's Department
5555 Overland Ave., Suite 5105
San Diego, CA 92123
(858) 694-3903
Fax: (858) 694-3433
don.root@sdsheriff.org

Lt. Scott G. Roper
Communications Section
Baltimore Police Department
242 West 29th Street
Baltimore, MD 21211
(410) 396-2450
Fax: (410) 396-2289
scott.roper@baltimorepolice.org

Gene D. Ryan
Deputy Fire Commissioner
Chicago Fire Department
9156 South Leavitt
Chicago, IL 60620
(312) 745-4210
Fax: (312) 745-4228
gryan@cityofchicago.org

Maj. Stan Savage
Communications – 911
Atlanta Police Department
675 Ponce De Leon Avenue, NE
Atlanta, GA 30308
(404) 817-2370
Fax: (404) 853-7353
ssavage@atlantapd.org

Lorri A. Schafer
West Electronics, Inc
Industrial Park, Box 577
Poplar, MT 59255
(406) 670-5232
Fax: (406) 462-5634
lorri.schafer@direcway.com

Erik D. Schull
Telecom Engineer III
RMU
Communications
Orange County Sheriff's Department
840 North Eckhoff, #104
Santa Ana, CA 92868
(714) 628-7159
Fax: (714) 704-7902
erik.schull@ocgov.com

Robert N. Sedita
Commander
Technical Services Division
Los Angeles County Sheriff's Department
12440 East Imperial Highway, Suite 650
Norwalk, CA 90650
(562) 345-4314
Fax: (323) 415-3069
rnsedita@lasd.org

Lynn C. Sherman
Communications Manager
Communications Section
Colorado Springs Police Department
705 S. Neveda Avenue
Colorado Springs, CO 80903
(719) 444-7456
Fax: (719) 444-7381
shermanly@ci.colospgs.co.us

Jackie Siegel
Editor, *npstc spectrum*
15 St. Raphael
Laguna Niguel, CA 92677
(949) 715-0522
jackiesiegel@cox.net

Don Simmer
Patrol Division
Cheyenne Police Department
2020 Capitol Avenue
Cheyenne, WY 82001
(307) 637-6505
Fax: (307) 637-6558
dsimmer@cheyennepd.org

Mike Simpson
Manager
Wireless Communication Services
City of Austin Communications and Technology Management
1006 Smith Road
Austin, TX 78721
(512) 927-3209
Fax: (512) 927-3253
mike.simpson@ci.austin.tx.us

Kyle Sinclair
Communications Program Manager
National Law Enforcement Corrections Technology Center
3000 C Street, Suite N304
Anchorage, AK 99503
(907) 569-5640
Fax: (907) 569-6939
Kyle.sinclair@ctsc.net

Tom Sorley
Manager
Public Safety Communications
Orange County Government
3511 Parkway Center Court
Orlando, FL 32808
(407) 836-9668
Fax: (407) 521-4625
tom.sorley@ocfl.net

Dr. Jonathan J. Spanos
Director
Governor's Office of Administration
2605 Interstate Drive, Suite 140
Harrisburg, PA 17011
(717) 346-0036
jspanos@state.pa.us

Capt. Dale L. Stockton
Carlsbad Police Department
2560 Orion Way
Carlsbad, CA 92008
(760) 931-2168
dstoc@ci.carlsbad.ca.us

Sgt. Clark Tompsett
New Mexico State Police
4491 Cerrillos Road
Santa Fe, NM 87507
(505) 827-3415
Fax: (505) 827-3395
ctompsett@state.nm.us

Paul Torpey
Systems Analyst
Department of Justice/BAE Systems
12801 Fair Lakes Parkway, Suite 100
Fairfax, VA 22033
(703) 322-1673
paul.torpey@baesystems.com

Joe Trella III
Senior Police Analyst
Homeland Security & Technology
Center for Best Practices
National Governors Association
444 North Capitol Street, Suite 267
Washington, DC 20001
(202) 624-8566
Fax: (202) 624-5313
jtrella@nga.org

David Troup
Director of Telecommunications
Boston Police Department
400 Frontage Road, Room 109
Boston, MA 02118
(617) 343-4620
Fax: (617) 343-5343
troupd.bpd@ci.boston.ma.us

Capt. Ray Tubbs
Technology Unit
Birmingham Police Department
1710 First Avenue, North
Birmingham, AL 35203
(205) 254-1710
Fax: (205) 254-6595
wrtubbs@ci.birmingham.al.us

Eric A. Tumbarella
IT Manager/ CIO
Information Technology
City of Lansing
201 North Grand Avenue
Lansing, MI 48933
(517) 483-4271
etumbarella@ci.lansing.mi.us

Marilyn B. Ward
Executive Director
NPSTC
318 Palmer Drive
Lexington, SC 29072
(803) 951-3930
mward@highlands-group.com

Shawna Warneke
Administrative Assistant
SEARCH
7311 Greenhaven Drive, Suite 145
Sacramento, CA 95831
(916) 392-2550 ext. 219
Fax: (916) 392-8440
shawna.warneke@search.org

Claudia Wayne
SAFECOM
1920 N Street, NW
Washington, DC 20036
(202) 420-0611
claudia_wayne@sra.com

Lt. Stephen J. Webb
Communications Division
Los Angeles County
Sheriff's Department
12440 East Imperial Highway,
Suite 600E
Norwalk, CA 90650
(323) 821-0839
Fax: (323) 415-3671
sjwebb@lasd.org

Tammy Weese
Project Manager
Ogden City Corporation
291 8th Street
Ogden, UT 84404
(801) 643-1540
tweese@weber911.org

Bob Wentworth
Communications Systems Manager
Spokane Police Department
1100 West Mallon Avenue
Spokane, WA 99260
(509) 625-7703
Fax: (509) 625-7720
bwentworth@spokanecity.org

Bernard Williams
Grant Program Specialist
COPS Office
U.S. Department of Justice
1100 Vermont Avenue, NW
Washington, DC 20530
(202) 514-8121
Fax: (202) 305-7621
bernard.williams2@usdoj.gov

Chief Bobby Williams
Fire Chief
Spokane Fire Department
44 W. Riverside Avenue
Spokane, WA 99203-0189
(509) 625-7001
bwilliams@spokanefire.org

Keith Young
Preparedness Directorate
Office of Grants and Training
U.S. Department of Homeland
Security
800 7th Street, NW
Washington, DC 20531
(202) 786-9774
keith.young@dhs.gov

Robert M. Zanger
Attorney/Advisor
Wireless Management Office
Justice Management Division
U.S. Department of Justice
12801 Fair Lakes Parkway, Suite 100
Fairfax, VA 22033
(703) 322-1675
Fax: (703) 322-1751
robert.m.zanger@usdoj.gov